The Builder.

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ILLUSTRATIONS.

Figure and Canopy, St. George's Church, Newcastle-on-Tyne ..... Designed by Mr. T. R. Spence.
West End, St. George's Church, Newcastle ..... Mr. T. R. Spence, Architect.
Design for a Gesso Decorated Box ..... By Miss Hilda T. Baker.
Design for a Jewel Box ..... By Miss E. Thorp.
Hanley, Stoke, and Fenton Joint Infectious Diseases Hospital, Bucknall ..... Mr. Elijah Jones, Architect.

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A Year's Work of the Local Government Board.

THE thirty-first annual Report of the Local Government Board for the year 1901-2 has just been issued, and is as full of interest as its predecessors. Those who regard what are popularly called "Blue Books" as mere statistics overlook both the importance and suggestiveness of this bulky volume, for it is, in effect, a history of Local Government for the past year; a history, not of a mere Government Department, but of the work of the popularly elected representatives of the people in urban and rural districts. The Report deals with a multitude of subjects from which it is only possible to select a few.

At the present time there is no subject which touches the public more than the question of rates, and it is therefore interesting to give some particulars in regard to the financial condition of the County Councils and other public bodies. The amount borrowed by County Councils during the past year amounted to very nearly 1¼ millions. The largest part of this sum was required for the purpose of lunatic asylums, and the amount raised for this purpose from year to year has been markedly on the increase. In the year 1896-7 the amount borrowed was 338,000*l.* odd, in 1901-2 it had risen to 857,000*l.* This is an immense increase, and it represents a considerable addition to local burdens. It also represents a very considerable amount of building and kindred work, and it represents also, we take it, the absorption into public institutions of persons who would otherwise be a burden on their families in cottages and small homes.

Most of the balance was used for the purpose of erecting public buildings of various descriptions, such as halls, buildings, offices, and court houses, of which 6,250*l.* was raised for the purposes of the Technical Instruction Act, and 2,900*l.* for industrial schools. It is obvious that, when so much money has to be spent on the general purposes of County Council administration, there would be a considerable reluctance, both by the authorities themselves and by those who have to pay, to raise money for educational purposes, which are not so obviously pressing as the extension of public buildings and institutions such as lunatic asylums.

Turning from the large authority of the County Councils to the smaller body, the Parish Councils, it is interesting to note that the latter borrowed during the year 22,000*l.* odd. A great part of this sum, as well as that which has been previously raised, was incurred for the purpose of the Burial Acts, the rest was spent on recreation grounds, reading-rooms, parish-rooms, offices, halls, lighting, and allotments, and also upon fire-engine stations. Although the amount, if we consider the number of Parish Councils in England, is small, it is yet noticeable, because a few years ago it would have been quite out of the question for any sum to have been spent in this manner, and there cannot be a doubt that it is the beginning of considerable public expenditure by Parish Councils. Every parish will, sooner or later, have its parish hall, and it will be necessary also to spend money upon the water supply. Another point of interest in connexion with parishes, is that of the adoption of the Public Libraries Act of 1892. This, again, is an entirely new departure. Up to March 31, 1902, twenty-nine Parish Councils had taken steps to put the Public Libraries Act in force in their parishes. They are limited to a rate of 1d. in the £, and they are empowered by the Act of 1901 to make by-laws, which require the authority of the Local Government Board for their formation, for the purpose of regulating or protecting any library or art gallery under their control. There can be no doubt that public libraries in the rural districts are even more required than in towns, where it is so easy for every passer-by to obtain literature, good or bad, at a very cheap rate, and it is to be hoped that some of the rural authorities will take advantage of the Public Libraries Act. In those cases in which a special building is erected for this purpose, it is much to be hoped that an attempt will always be made to have it designed in harmony with the surrounding features. Thus, in those villages which are characterised by half-timbered houses it is desirable to erect a building in that style rather than to place among old-fashioned and substantial cottages a structure of red brick and slate which, however suitable for a suburb of a town, is yet quite out of place among the trees and gardens of a village.

The total amount expended by Parish Councils during the year amounted to 189,000*l.* odd, and here again, while much of the work has been useful, there is an obvious danger in the increase of the rates, which may prevent the raising of money. If there is one thing more than another which the ordinary dweller in the country detests, it is the increase of local rates.

A feature of considerable importance which appears in this Report is that which relates to the expenditure of County Councils on main roads, and this is the largest item in their outgoings. The Councils repaired during the year 15,986 miles of main roads. The actual mileage of the main roads of England and Wales was 26,989, but in about one-third of the rural districts the main roads were maintained by the District Councils on behalf of the County Councils. This is a plan which, on the whole, is to be deprecated, because there is no doubt that a large and central body such as the County Council is much more competent to systematically manage the roads of the county than any local authority.

The average cost per mile of the main roads repaired by the County Councils in urban and rural districts amounted to 61*l.*; by Rural District Councils 57*l.* per mile; and the difference in the cost is probably fully equalled by the difference in the character of road, for there can be no question that the roads maintained by the County Councils are in a better condition than those by Rural District Councils. Here, again, there is a certainty of increase, in the latter districts, of the expenditure, because there are a large number of roads which require to be brought up to a particular standard before they can be economically managed. During the last ten years County Councils have had to raise the character of the roads, and it is possible that in their case the expenditure may presently decrease, since the cost has been to some extent of late of a capital nature.

Dealing still with the financial question, we now turn to the expenditure on that most important of subjects, the sanitation of the districts. And here, again, we have to

face the unpleasant but inevitable fact that the rates have increased, and have increased to an extent which we hope represents an equal increase in the health of the community, for between 1874-5 and 1899-1900 the expenditure of Sanitary Authorities, whether Rural or Urban, increased by nearly 9½ millions; in other words, from 4½ millions to 14½ millions, or 204·1 per cent.

One point to be borne in mind in connexion with the increase of the rates in Urban Districts, which at first sight seems out of proportion to those of the Rural Districts, is that there have been considerable alterations in the area of the former. The effect of these alterations has been to add considerably to the amount of the rates in the Urban Districts and to reduce to some extent the amount levied in Rural Districts, or partly in Urban and partly in Rural Districts. The relative increase, therefore, in the Urban or Rural rates, is less disproportionate than might be inferred from the figures in the Report.

The importance of the annual Report of the Local Government Board is so great that we cannot but think the time has come when it might be considered whether it could not be divided into two portions, one dealing entirely with London and the other with the rest of the country. To a very great extent the interests of London and the country are so separate that it would be far more convenient to have two volumes dealing with these two separate subjects. In the very middle of this bulky volume of 714 pages we come across the subject of the Metropolitan Water Supply, which, however important to the dwellers in London, is totally without interest to those in the wilds of Wales. Indeed, it is a question whether the subjects dealt with in this Report could not be more clearly grouped. Preceding the question of the Metropolitan Water Supply come some interesting essays, for such in fact they are, on the boarding out of pauper children. There is, in effect, but a very elementary kind of order in this volume, and the index is by no means as full as is desirable. It would also be useful if with each volume some kind of *précis* of previous years could be given, so that it would be possible to form a comparison of the history of the year with that of the previous decade.

A FURTHER WORD ON THE LIVERPOOL CATHEDRAL AWARD.

THE assessors in the Liverpool Cathedral competition, Mr. Norman Shaw and Mr. Bodley, appear to have considered that the letter of "A Layman" in the *Times*, referred to in our article of October 11, required some reply from them, and their letter on the subject appeared in the *Times* of the 17th. We hardly think, however, that they have quite answered the criticisms of "A Layman." They point out, as we did, that one of their selected five was one of those who had "taken no trouble," in the sense that he (or they—for it was a partnership firm) had only sent in old drawings; but that these drawings were large and important, which is quite true; nor have we any fault to find with this selection. But certainly the wording of the assessors' Report implied a certain amount of slight to those who had only complied with the invitation so far as to send in illustrations of executed work. What do the words of the Report mean if they do not mean this?

"Many of the competitors in this class have taken absolutely no trouble. They have simply sent in a portfolio containing few, or many, photographs or drawings which they happened to have by them."

That is exactly what Messrs. Austin & Paley did; they sent in a number of drawings which they happened to have by them; so that their selection is clearly at variance with the wording, at all events, of the Report. And those who sent in portfolios of photographs were simply accepting one of the alternatives offered to them in the advertisement of the Committee. The assessors now say that they were perfectly aware of this factor in the terms of the competition, and had not overlooked it; but surely they must see that the wording of their Report reads as if they had, and that the criticism of "A Layman" was a perfectly natural one. They now explain further as follows:—

"We wonder if the writer of the letter really saw and studied the drawings (there were about 1,200 of them) as carefully as we did, or if he is writing from mere hearsay?

If he had seen them we believe he would have been as much surprised at the contents as we were. One competitor sent a single plan, rather suggestive of the Albert Hall, the entire area being closely seated. In his report he said he had never built any buildings, and that he had been unable to prepare a design, as he had been ill. Another competitor exhibited a large chalk drawing of a figure; a third, two photos of a brass lectern, and so on. There were many similar, and many designs equally little to the point."

Now, we did see the drawings, and spent a whole day in a very careful examination of them (to more purpose we think than the assessors did), and we deny that there were "many similar." These trivial and carelessly selected examples were certainly in a small minority. Moreover the author of the figure-drawing referred to writes to the *Times* to say that he has been very unfairly treated, as he sent in also a large perspective design for a cathedral made by him many years ago, "and other drawings to show my ability as a surveyor of buildings and an architectural draughtsman. I sent in this figure drawing to show my ability and training in a branch of art and drawing which I consider as essential for an architect as Euclid and algebra are for a mathematician." That is perhaps putting it a little too strongly; very fine buildings have been designed and erected by architects who could not draw the figure; but there is no doubt that it is a most important addition to an architect's qualifications and to the proof of his artistic equipment. Mr. George Taylor, the author of this set of drawings, goes on to say that his drawings were not hung up, but left in the portfolio in which they were sent and which was placed on the floor at the end of the room. If this is the case, he certainly has reason to complain; as far as we can identify them by his description we believe we did not see them; and we certainly saw and considered everything that was hung on the walls.

The assessors make a point of the fact that, by their express desire, the names and addresses of competitors were carefully concealed. As we have already said, this system ought to have been announced from the first, and not adopted as an afterthought; but in any case it is hardly logical for the assessors to make such a point of this supposed anonymity, which in some cases must certainly have been only nominal. They must, for instance, have known the authorship of Messrs. Austin & Paley's drawings, most of which have been published and have been exhibited at the Royal Academy. Then again, one of the five selected candidates is well-known to have been for many years the able assistant of one of the two assessors, who must certainly have known his drawing. We do not suggest that favouritism had anything to do with the selection; but under these circumstances it was surely hardly wise to lay stress upon the anonymous conditions under which the award was made.

Then the assessors argue that the fact that the Committee have made no additions to the list of competitors, which they had full power to do, is a proof that they were quite satisfied with the result of their Report. Undoubtedly it is; as we have already said, it is just the kind of result to have pleased this particular Committee, who wanted nothing but orthodox modern Gothic architecture. But that is just what we complain of. The Committee was a weak one, with most inadequate ideas as to the very meaning of architecture, and as to what might be done with a modern cathedral besides mere archæology. They wanted, or at all events they very much needed, ideas and instruction on this subject. They have had none. The Report has simply adopted the popular idea that a cathedral is a revived mediæval building; at all events it suggests nothing further.

As we said just now, we maintain that we studied the drawings in the competition to more purpose than the assessors did; and we think the study for a cathedral by Professor Pite, which we published last week, is a practical proof of it. We did not recognise the authorship of these drawings, but we at once saw that this was one of the most remarkable and powerful of the original designs, and suggested that the author of that certainly ought to have a place in the competition. Since we published it we have already had evidence that it has excited great, even enthusiastic admiration among some of our professional readers; and one asks naturally, what one is to think of the judgment of assessors who passed over such a design as that, in such a competition, without awarding even a "mention." Is this one of the designs that Mr. Shaw and Mr. Bodley stigmatise as "eccentric"? We do not think many of our readers will agree with them. We also mentioned with particular commendation the design numbered 38, also without being aware of the authorship. This turns out to be by Mr. Leonard Stokes, and we hope to have the opportunity of publishing it shortly; though, as he says, it can only be considered as a sketch. Now here are two remarkable designs entirely passed over in the competition, both of them turning out to be by men who, if it were a mere question of voting by names, apart from drawings, would unquestionably receive more votes, in a conclave of architectural voters, than any of the five who have been selected. And, apart from their names, they sent in designs which showed original thought, not mere archæology. But this, we presume, is "eccentricity."

For the architecture of the two eminent

gentlemen who have acted as assessors we have every admiration. But we cannot say that we think their critical judgment has shone very conspicuously in the matter of this Cathedral Competition. They do not appear, in fact, any more than the Committee, to have at all grasped the problem before them.

NOTES.

Technical Education.

Mr. Balfour's address at the opening of the Manchester School of Technology last week was chiefly interesting in that it will impress on the public at large the need and the reasons for technical education. Mr. Balfour began by speaking of the necessity that the student who enters a technical school should be thoroughly equipped with ordinary knowledge. This is a very rudimentary truth, and it is one which in this journal we have over and over again insisted upon, but it is none the less gratifying to see the Prime Minister stating so emphatically to a general audience of persons—a principle which has hitherto certainly not been sufficiently grasped. Mr. Balfour's other point was that it was useless for the Manchester Corporation to have established schools of technology, which are said to be superior to those of any other locality in England, and perhaps of the Continent, unless the employers of the county of Lancashire make use of those who are educated there. Mr. Balfour impressed upon his audience the fact that the practical instruction in the workshop might easily be overrated; and, as a matter of fact, the equipment of the Manchester School of Technology is such that in addition to technical instruction the student will have opportunities of obtaining practical knowledge in the best possible way—that is, side by side with oral instruction and scientific demonstration. Manchester is fortunate in having efficient elementary and secondary schools; but Manchester is not England, and what is required is the multiplication in various parts of the country of similar institutions, and the improvement in other localities of elementary and secondary education. It is the misfortune of the present controversy over the Education Bill that, in the din of religious and political strife, the real interests of education are being overlooked; and this arises, it must be confessed, from a want of statesmanship on the part of the Government, and an insufficient appreciation of the points which are certain to raise conflicts.

Records of Ancient Buildings.

Lord Rosebery made one of his usually interesting and suggestive speeches at the fourth annual meeting of the London Topographical Society last week. We are glad that he pleaded for the preservation of old prints and maps of vanishing London. His appeal might, however, have been addressed to a larger audience. There are all over England, not only in the towns but in the rural districts, buildings which are fast disappearing and of which no trace is left, and unless old drawings and plans are carefully preserved by local authorities or local societies, the knowledge of future generations of the England of the past will be very limited. This is the great reason for county museums, as in no other way can the many evidences of the past, which are scattered over English counties, be preserved. It would be very desirable if the County Councils were to appoint committees to consider what historical monuments within their jurisdiction may be preserved, or the best manner of retaining some evidence of their existence. The London Topographical Society is certainly doing very good work for London, but a similar labour is required all over England, and the County Councils are the real bodies who should undertake it. We hope that Lord Rosebery's appeal will have wider results than he expected when he addressed it to his limited audience.

The Adelphi Site.

We were glad to notice that in the discussion on the question of taking the Adelphi site for a County Hall, at the last meeting of the London County Council, one speaker, Mr. Cohen, supported strongly the view which we have already expressed in regard to the impropriety of sweeping away the Adelphi buildings; remarking that no architect had more impressed his individuality on London than Robert Adam. Colonel Rotton also observed that no doubt the Historical Records and Buildings Committee would have something to say on the subject. Another speaker however (not reported in the daily papers) observed that the objection could be met by having the new County Hall designed in the Adam style! This is really too good to lose. The scheme is however shelved for the present, at all events, by the tie vote which left the Council no present power to proceed with it.

Railway Rates (Owners' Risk).

The attitude of the railway companies is just now causing a considerable amount of friction between themselves and their customers, on this and other points. Brickmakers have an old-standing grievance in the matter of computation of weight, the complaint being that one district is favoured in comparison with another in this respect. The more drastic measures now taken in enforcing demurrage and siding rent charges strongly affect the building and engineering trades, and the same may be said with regard to the "Owners' risk" trouble. These rates range from 10 to 20 per cent. below the ordinary, or company's risk rates, and the railway companies are apparently seeking to impose more onerous conditions upon traders taking advantage of these lower rates. They require relief from any responsibility whatever, except *upon proof* of wilful negligence or misconduct, on the part of their servants; and it is argued that it is generally simply an impossibility for complainants to furnish such proof. At the time of the agitation which culminated in the Railway Rates Acts of 1891, the companies were more dictatorial still in this and other matters; but they soon had to abandon their attitude, owing to irresistible public opposition. Their proposed "owners' risk" agreement of that date contained the following clause:—

> "In consideration of your charging me such reduced rates, I agree to relieve you from all liability for loss, damage, misdelivery, delay or detention, *from whatever cause arising.*"

It will be seen that this was far worse than the clause which is so strongly objected to now. Our own impression is that the latter is not altogether new either, but, in any case, a manifestly unjust or unreasonable stipulation would not avail a railway company in the Law Courts. It was long ago laid down that "the consent of the parties does not make that reasonable and just which, in the opinion of the Court is unjust and unreasonable."

The Metropolitan Fire Brigade.

The Queen Victoria-street fire has been made the subject of a special report by the Fire Committee of the London County Council, in which the result of a fire inquest held upon this fire in the City is dealt with by the Committee in some detail. The Fire Committee, apparently, in no way censure their Chief Officer; they, indeed, uphold his views, which is, of course, quite natural, seeing that the Fire Committee was quite as much on its trial as the Chief Officer. The fact, however, nevertheless remains that the equipment of the Brigade is notably defective, both in life-saving and in fire-extinguishing appliances; further, that it is undermanned and underofficered, and that its general arrangement or disposition is not what it should be. The Brigade further lacks that knowledge of building construction and building materials which is essential for modern fire-brigade work; and for the last ten years the force does not appear to have realised the gradual change which has been coming over London, both as to the character of its buildings and their contents. A stronger brigade, better equipped and more appreciative of the present building requirements is essential, and it would be well if this were understood before we are subjected to some great calamity. It seems puerile that, in its defence, the Committee should lay stress on its views that the practical height of a fire-escape cannot exceed 50 ft. Since it is common knowledge that very excellent fire-escapes of 70 ft. and 80 ft. in height are on the market and in use abroad, and, should the average height of our buildings become even greater than it is now, it will be necessary to have easily portable fire-escapes that will reach 100 ft. It is imperative that the Fire Brigade authorities should know that they have to meet altered forms of building construction, and that they are no longer dealing with the London of 1870.

The L.C.C. and the Theatres.

In the course of the meeting of the London County Council on Tuesday a Report was presented by the Theatres and Music Halls Committee dealing with the relationship of the Council to theatre licences by the Lord Chamberlain, from which it would appear that the Lord Chamberlain desired to screen himself behind the London County Council and obtain a County Council certificate for the safety of the theatres he licenses. The County Council thereupon wisely expressed its desire to limit its certificate to the extent of saying that a theatre was "reasonably safe;" which is, of course, as far as the Council could go. It appears that certificates of this description are now to be issued, and that the definition of "reasonableness" is to be obtained by reference to the minimum requirements of the London County Council's regulations for *new* theatres. All this is no doubt very satisfactory to the public, but the theatre manager is thereby placed in a most difficult position, with the result that one

well-known theatre, the Lyceum, has already had to close its doors. The arrangement now adopted by the Lord Chamberlain in conjunction with the County Council is, we think, quite contrary to the spirit of the Act of 1878, under which these authorities are co-operating. From a practical point of view, however, a definition of safety by some public authority is necessary; but what the theatre manager requires is that, given the definition, and the "reasonable" standard of safety having been achieved, he should be left in peace to enjoy the tenure of his playhouse without the constant vexatious interference of officialdom. He also desires the powers to be vested in a permanent authority. In other words, given the definition of "reasonable safety," it is also necessary to have absolute finality in the requirements for safety, and a continuity of policy; otherwise theatre enterprise becomes a too precarious business.

A Fire Test with Oak Flooring.

On Wednesday last the British Fire Prevention Committee conducted another experiment to test the fire-resisting powers of timber flooring. On this occasion the Hamburg system was tested in the following manner:—A room with 14-in. enclosing walls of stock brickwork was fitted up with a framed floor having 12 in. by 10 in. deal girders and 10 in. by 10 in. deal binders covered with 2½-in. rebated oak flooring, the whole being supported on 15-in. deal posts and the brick walls. At the bottom of this brick chamber (which was about 22 ft. by 10 ft.) a water-gas flame was provided with the intention of maintaining a temperature of 2,000 deg. Fahr. for two hours. The maximum temperature reached, however, did not exceed 1,700 deg. Fahr., but even this temperature was quite sufficient to prove that the floor was by no means fireproof. At the time of leaving the fires were out, but the timbers were far too hot to handle and examine thoroughly; photographs will, however, be made, and careful notes compiled to show the results of the test. The 2½-in. oak flooring was in flames wherever it had not been covered with a stack of loose bricks, and would evidently offer little obstruction to the progress of flames travelling upwards. The girders and binders also appeared to burn freely in spite of the fact that, owing to the floor being without openings of any kind, the flames had less play than would often be afforded in a building.

Bolton Hall, N.R., Yorkshire.

This seventeenth century mansion, a seat of the Barons Bolton, which was consumed by fire last week, is situated near Leyburn and Castle Bolton on the road from Wensley to Redmire, and stands within well-timbered grounds, overlooking the beautiful valley of the Ure, or Yore. The house, somewhat modernised in the course of last century, was built of stone in 1660-70 for Charles, sixth Marquis of Winchester and first Duke of Bolton. On the death of Henry, sixth and last Duke, the Bolton estates passed to Thomas Orde, of Northumberland, husband of Jean Mary Paulet, or Powlett, on whom, failing male issue of his brother, her father, the fifth Duke, had entailed most of his property. In October, 1797, Thomas Orde-Powlett was elevated Baron Bolton, of Bolton Castle, co. York. At Bolton Hall had been preserved many portraits of the Scropes, of Bolton Castle, one of them being that by Van Dyck of the last Lord Scrope, whom Charles I. advanced Earl of Sunderland, and whose daughter Mary married Charles, first Duke of Bolton. Most of the pictures and furniture were, fortunately, saved from the fire. In the parish church of Wensley, one mile distant, are numerous monuments and memorials of the Scropes of Bolton and the Orde-Powletts; the family pew is enclosed with richly-carved screen-work, taken thither from the Scrope chantry at St. Agatha's, on the Swale, near Richmond, commonly known as Easby Abbey, founded in or about 1152 by Roald, constable of Richmond Castle, for Præmonstratentian canons regular. In the aisle is the chantry of Richard, Lord Scrope, who in 1398 endowed a college of six canons at Wensley.

Duke of York's School, Chelsea.

It is stated that the Secretary of State for War is favourabiy disposed towards a project which the authorities have before them for the removal of the Duke of York's School from Chelsea into the country, where the boys could be maintained in more suitable buildings and be provided with more space for recreation. Ten years ago Queen Victoria sanctioned an order whereby the name of the Royal Military Asylum was changed to that which it now bears. The present buildings were erected in 1801-3, after plans and designs by John Sanders, and constructed of brick with stone dressings, the principal front, towards Burton's-court, having a high portico with an order of four columns and an angle-pediment. The school had been established for the children of soldiers, and the Duke of York laid the first stone on June 19, 1801. In 1890 a fund was opened for the restoration of the school chapel and the purchase of a new organ. Burton's, formerly Great or College-court, extending over 12 acres, had been a chosen resort of the Chelsea Hospital pensioners. It was leased in 1887 to the General in Command of the Home District, on behalf of the troops attached to his command, and has since been taken as a recreation-ground for the regiments of Guards quartered in London.

Institute of Painters in Water-Colours.

The Institute of Painters in Water-Colours have this year reduced their autumn exhibition to a collection of "sketches and studies" in the literal sense of the words; and the drawings of each member are grouped together. We can thus distinguish between those whose productions are examples of genuine sketches, of broad style and rapid execution, and of great interest as such; those whose sketches are of more interest than their finished works; those which are of less interest than their authors' finished works; and those which are weak and of no interest at all. The latter may be passed over. Mr. Joseph Knight is among those whose sketches are inferior, *quâ* sketches, to his finished works, which latter we admire very much, but it is obvious that the finish is an important element in them; the sketches are heavy in style. Mr. John White's are fine in themselves and happily suggestive of what the finished works should be. Mr. Frank Walton's drawings go perhaps a little further than the true "sketch" condition, but they are all admirable, especially "The Nunnery, Alderney" (290). Mr. Cotman and Mr. C. E. Johnson each have a good collection, among which we may particularise Mr. Cotman's "Horning Ferry" (321) as one of the best landscape studies in the room. Mr. John R. Reid's sketches show in a rather too crude form the strong oppositions of colour which in his finished works are toned down into a more coherent but still powerful style; these are rather artists' memoranda than sketches for exhibition. Mr. Fulleylove is another of the artists who tell better in finished work than in sketches. Mr. Dixon's two drawings, which go a little beyond the sketch stage, of the Fleet on August 16 and August 18 of the present year (397, 404), are admirable in themselves, if they recall Mr. Wyllie a little too much. Among Mr. Edgar Bundy's figure studies "A Reading from Boccaccio" (435) has the making of a good picture in it. Mr. Orrock's landscape studies have the true sketch quality, broad and free in execution; "On the Nith" (511) shows a particularly fine sky. Mr. Weedon's are still better in this respect—perhaps the best set of landscape sketches in the rooms. Mr. Lee Hankey, though his drawings are rather unpleasant and puzzling in texture, has original suggestions in colour. Among Mr. David Green's exhibits is a very fine sea study, "A Derelict" (601), which might be worked up into an impressive picture. The President (Mr. Gregory) has a most expressive study of the head of a young girl, "Looking Forward" (514), and an exceedingly clever interior sketch with a lady looking over a newspaper "Before the Sitting" (516), notable as an admirable piece of drawing. Among works of an exceptional type Mr. Percy Macquoid's studies for various costumes for characters in "Paolo and Francesca" and "If I were King" are very picturesque and decorative in character.

The Modern Gallery.

Two small exhibitions at the Modern Gallery in Bond-street are chiefly noticeable for the presence in one of them of several works (ten altogether) by Mr. John Fraser, one of the most powerful painters of sea and shipping of our day, and of whom we see far less in picture galleries than we could wish. His large study of sea only—"The Wine-dark Sea"—is really grand in character; "On the Medway" shows how he makes a ship drive along the water in a strong breeze; "Cape Trafalgar" has an old battle-ship under full sail for its centre-piece; "Kendal Dyke" is a most powerful landscape study; but all the works under his name are worth attention. Mr. Percy Heard, the other principal exhibitor in the same room, shows a good deal of originality of style in his landscape studies; and there is a most admirable architectural subject, "Windows of a Cairo Harem," by Mr. F. Ogilvie. In the other room is a large collection of drawings by Miss Sophia Woods, under the title "In Many Lands," which have a great deal of topographical interest; we do not know that they go much beyond that kind of interest at present, though there is promise in them; but they include a great many more or less architectural subjects, and the architecture is not drawn as well as it should be where architecture is a prominent element. The view of the Parthenon should not have been exhibited;

from an architect's point of view it is all wrong; it misrepresents entirely the character and proportion of the columns; and the Parthenon is too celebrated a building to be lightly treated.

COMPETITION DESIGNS FOR DEPTFORD NEW MUNICIPAL BUILDINGS.

THE assessor's award in the competition for new municipal buildings at Deptford was made known last week, and there has since been an opportunity of viewing the forty-five sets of design sent in. Mr. John Belcher was appointed at the beginning by the Borough Council to act as assessor in the competition, with the result that the instruction to architects competing were to the point. As is too often the case, the first premium of 100*l.* merges in the commission paid to the successful architect. We should like to see this clause less frequently; it would be better to offer no first premium; as it is, it suggests the promoters' desire to have a sop to fling to the architect placed first by the assessor in the event of their wishing to adopt one of the other designs, while if they are loyal to the assessor it is idle and absurd.

The cost of the building is not to exceed 30,000*l.*, and if the successful design cannot be carried out within 10 per cent. of the estimate its author is disqualified. With a warning such as this in the instructions, some of the designs submitted are somewhat surprising. The site is limited, with practically only one frontage; the requirements include Council chamber and committee-rooms, Town Clerk's, Borough Surveyor's, Medical Officer's and Borough Accountant's offices, with lavatories and caretaker's apartments.

The winning design is No. 3, by Messrs. Lanchester, Stewart & Rickards, and without question the Council are to be congratulated on having the best design that was sent in. The ground plan is divided between the Borough Surveyor and the Borough Accountant on the left, and on the right between the Town Clerk and the Medical Officer. The entrance is in the centre of the frontage, with a central hall and staircase with top light at second floor level; the staff lavatories are in the basement, or, rather, what is only a half basement. The conditions state that "a complete set of water-closets, urinals, and lavatories are required *for* each floor." If the word *on* had been used instead of *for*, we think other competitors might have grounds for complaint whatever the Council intended this clause to mean, it is only another instance in favour of leaving as much as possible to the discretion of the architect. The first floor frontage is occupied by the Council chamber, the back contains a suite of committee rooms. The elevation shows a fine and carefully-studied façade in the best period of the Classic Renaissance as it was practised in England. The treatment of the large windows on the ground floor is a happy solution of the difficulty, and the effect in execution should be good. The design is open to criticism in certain details, details which after all are a matter of taste, but to our thinking the treatment of the segmental bay over the entrance is ill-considered, and it might even be preferable to omit the bay—which is somewhat meaningless in the Council chamber—even, it may be, at the risk of dulness. The figures on the cornice—they are not apparently in niches—have rather the effect of an afterthought stuck on. The perspective drawing is an exceedingly fine one.

In our opinion the second and third premiated designs should change places. The third premium awarded to design No. 27 by Mr. Arthur J. Gale is a very quiet design, well balanced, and evidently very carefully thought out, and the printed requirements seem to have been most conscientiously adhered to. The ground and half-basement floors contain all the public offices, and the first floor is devoted to the Council chamber and committee-rooms. The amount of lavatory accommodation on this floor is rather astonishing, and there seems no necessity for a separate staircase for the mayor and town clerk. No. 32, by Messrs. S. B. Russell and C. E. Mallows, receives the second premium, with a design for which there is much to be said both for and against. The keynote of the plan is a central area dividing the plan practically into two, between which the main staircase is placed, by which access from one to the other is made, the two parts being at different ends. The offices are well lighted, but, on the other hand, there is waste in the excessive lengths of corridors. It seems also undesirable to have the committee-rooms and mayor's parlour on one floor, and the Council chamber and anterooms on another. The feature of the design is a low and not very beautiful tower peeping out of the main roof, at the foot of which is the entrance.

No. 41, by Mr. A. Brumwell Thomas, shows a good plan on somewhat extravagant lines, the recessed entrance opening into a finely proportioned hall, occupying about a third of the ground floor. This arrangement suggested a mezzanine floor for the remaining offices, the rooms of which open on to a gallery carried by columns in the hall below, the effect of which would have been extremely pleasing. On either side of the hall are moderately sized staircases of similar dimensions which look well on paper, but we believe in practice work badly, and are, moreover, an extravagant arrangement. The first is the principal floor, with Council chamber, committee rooms, &c. The faults of an otherwise clever and dignified front are a meaningless dome in the centre and an overpowering tower at the angle. But for these two features we imagine no assessor could have passed this design without recognition; it is conspicuous for courageous planning and for qualities of mass and light and shade in its elevation; but with the features already objected to, it would be impossible to recommend it as being within the limit of cost.

No. 15, by Messrs. Wills & Anderson, as a whole, is a nice design. We doubt the wisdom of the huge three-quarter columns in conjunction with the tiny rusticated pilasters on the first floor. The plan is simple and economical. Mr. Alfred Cox and Mr. F. Dare Clapham send a design, No. 14, having much to recommend it. The plan is based on a central area, the elevation is a well-balanced unsymmetrical façade. No. 1, by Messrs. William Wallace & Gibson, is a well thought out design, the elevation shows a rather overpowering roof, apparently for effect; in other respects the vigour of the design is very telling. No. 17, by Messrs. Butler Wilson & Oglesby, is an effective piece of planning, though somewhat fussy in design, particularly in the elevation, which is too full of features, but has, nevertheless, a generally pleasing effect. A design by Mr. A. E. Dixon is in a strong masculine way, though the flêche or clock turret is unworthy of the rest, and does much to mar the effect. The plans are readable and straightforward. No. 20, by Messrs. Armstrong & Wright, is a very nice design, which would have been more easily appreciated had the plans been tinted. There seem to be too many staircases, and, in our opinion, the tower was unnecessary to the general effect.

Nearly all the designs are of considerable merit, and, although it is impossible to call attention to them all, there were none that had not some points worthy of consideration.

ARCHITECTURAL SOCIETIES.

THE TRANSVAAL ASSOCIATION OF ARCHITECTS.—Since it was decided to alter the title of the South African Association of Engineers and Architects, founded in 1891, and to eliminate the word "Architects," there has been no Association in South Africa adequately representing the profession. The architects belonging to the South African Association of Engineers, with other qualified members of the profession, practising there before the war, have now constituted themselves into a separate association to be known as "The Transvaal Association of Architects." The objects of the Association are primarily to form an influential representative body on the lines of the Royal Institute of British Architects, to whom the Government, the Town Council, and other public institutions may refer matters on which they desire the views of the profession, and to represent the views of the profession generally. The following gentlemen form the Executive:—Viscount Milner, G.C.B., G.C.M.G. Hon. President; E. B. J. Knox, M.I.C.E., A.R.I.B.A., President; W. Leck and G. A. Hamilton Dickson, A.R.I.B.A., Vice-Presidents; P. E. Treeby, G. S. Burt Andrews, W. H. Stucke, A.R.I.B.A., J. Waterson, F. Emley; and G. A. Hamilton Dickson, A.R.I.B.A., Hon. Sec. and Treasurer.

GLASGOW ARCHITECTURAL ASSOCIATION.—At a recent meeting of this Association, held in their own rooms, Pitt-street, the President intimated that this autumn the Association celebrates the twenty-fifth anniversary of its foundation. He proceeded to describe how it came into existence through the initiative of Mr. James Lindsay and Mr. William Dunn. These gentlemen, early in the year 1878, called together a few kindred spirits to discuss the possibilities of an Association, and set the ball rolling by calling a meeting of those interested. At this meeting it was resolved to form an Association, rules were submitted and passed, and office-bearers elected. A room for meetings was shortly afterwards secured in the Belgravia College, Newton-terrace. This remained the headquarters for two or three years, when a move was made to more central premises at 101, St. Vincent-street. The stay there was also of short duration, being brought to a sudden and tragic end by a fire. Thereafter a suite of rooms was secured at 114, West Campbell-street, where a successful and progressive existence of about eleven years ensued, till, in 1895, the Association joined with the Institute of Architects in securing joint chambers at 187, Pitt-street. The President then reviewed the progress of architecture during the lifetime of the Association, and remarked on the great advances that had been made from a practical and artistic standpoint, and referred to the advantages the younger generation of architects had over those of even thirty years ago in the latest illustrated works, process prints, and the greatly increased facilities for foreign travel. Looking to the present conditions of the art world, he further remarked how the present state of economics had affected it. The competition for trade, and the consequent rivalry between nations, had raised their patriotic spirit, and had led to a general revival in national literature and art. This was manifested in Scotland by the number of books on Scottish history, &c., being published, the great run on examples of Scottish art, and the restoration during the last few years of quite a number of our national monuments. Another pleasing result of this movement was the revived interest being taken by architects in the national phases of architecture in Scotland, especially those delightfully picturesque conceptions of the seventeenth and early eighteenth centuries. The President remarked on the fitness of the style for modern treatment, and diverged into a sketch of the domestic life of that period. He drew attention to the fact that the combined evidence of that domestic life and the buildings themselves clearly showed that Scotland was behind her great neighbours in her handling of the Renaissance, not through lack of originality or taste in her architects, but through lack of means in the country to indulge them.

COMPETITIONS.

PUBLIC BATHS, HANDSWORTH.—The whole of the competition plans were on view to the public during the whole of last week at the Council House, Handsworth. The five sets of plans were submitted to Mr. A. Hessell Tiltman, F.R.I.B.A., and he recommended that the plans marked A be adopted. This was agreed to by the Council, and on opening the sealed envelope containing the author's name it was found that the selected plans were the work of Mr. John P. Osborne, F.R.I.B.A., of 95, Colmore-row, Birmingham.

ELECTRICAL ENGINEERING PRACTICE. — The Council of the Institution of Electrical Engineers have circulated among the Clerks of some of the principal counties and boroughs the following suggestions with regard to the standard of professional etiquette which ought to be observed by, and expected from, consulting electrical engineers:—

"1. No consulting engineer should solicit employment as consulting engineer verbally, by letter, by agent paid by commission or otherwise, or by any other means. 2. No consulting engineer should answer advertisements for consulting engineers. 3. No consulting engineer should advertise for employment. 4. No consulting engineer should pay by commission or otherwise any one who introduces clients. 5. No consulting engineer should receive trade or other discount, or surreptitious commissions or allowances in connexion with any works which he superintends. 6. A consulting engineer, who is also directly or indirectly interested in any contracting or manufacturing business, should inform his client in writing what his connexion is with such contractor."—These are excellent rules, and it will of course be the more easy for electrical engineers to act up to them if public bodies are informed in regard to them.

Offices of the "Allgemeinen Zeitung," Munich. Professor Dülfer, Architect.

(Reproduced from the *Architektonische Rundschau.*)

OFFICES OF THE *ALLGEMEINEN ZEITUNG*, MUNICH.

We referred, in our issue of the 11th inst., under the head of "Magazines and Reviews" (p. 318, *ante*), to the design of this building, published in the *Architektonische Rundschau*, and now give a reproduction of it as an example of modern German street architecture, which has some additional interest also as the office of a journal of European celebrity. Professor Martin Dülfer, of Munich, is the architect.

The reader will observe the curious contrast, on which we have already remarked, between the sober and practical iron construction of the ground story, and the wild whirl of ornament (?) in the gable, as well as the weak sinuous line of the gable itself. Modern German street architecture, with all its cleverness, is constantly going off into these unnecessary vagaries, and thus what might have been a clever and interesting front is spoiled—to the English eye, at all events.

THE ARCHITECTURAL ASSOCIATION.

The first ordinary meeting of the Architectural Association was held on Friday evening last week, in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., Mr. H. T. Hare, President, in the chair.

Mr. H. P. G. Maule, hon. secretary, having read the minutes, which were confirmed,

Mr. C. H. Brodie proposed the adoption of the Report and balance-sheet for last session, which were printed in the "Brown Book." * In the Report would be found a very gratifying account of the work of the Day school, and a statement of the fact that the Royal Institute of British Architects had again given a donation of 100*l.* towards the educational work of the Association, for which the Committee were very grateful.

Mr. Francis Hooper, hon. treasurer, in seconding the motion, said that the figures in the balance-sheet spoke for themselves, and very little comment was necessary except to point out that the increasing expenditure of the Association in various departments was the result of the increasing work, and the wider scope of that work in the educational task which had been undertaken. With the increased classes and the establishment of the Day School, the clerical work had necessarily increased, and consequently more had to be expended in establishment expenses. The increase, however, was evidence of progress. As to the Institute grant, which had been received for eleven years in succession, they would have found it difficult to carry on the work without that grant. The remuneration of the lecturers and workers in connexion with the studio and classes, is, it is now believed, on a sufficiently business basis, that when changes are necessary, either from resignation or other causes, there should be no difficulty in finding capable and qualified men to take the place of those who had done so much to establish the courses which exist. The success of the Day school made it unnecessary to call upon the guarantors to tide the Association over the initiation of that school, which was a matter for congratulation, and it seemed likely that the work would soon be on a self-supporting basis. But while they had a paid staff, it was not to be forgotten that there is still a large amount of voluntary work done by men who give their time and experience ungrudgingly and unselfishly for the good of the Association. The list of candidates for election that evening showed the increasing popularity of the Association. They must be prepared for the social expenses to increase to some extent, but it was hoped that by careful supervision of details to keep those expenses within moderate limits, consistent with the success of their social functions, and the keeping up of their tradition for sociability, which had been one of the causes for the success of the Association. He thought he should be failing in his duty were he not to give expression to the valuable help received from the staff in the management of the financial and other work of the Association. There was a large amount of financial and clerical work carried out by Mr. Driver and his assistants, and there was the testimony of the accountant to the accurate and clear manner in which the very complicated accounts were kept.

The Chairman then put the motion to the meeting, and it was carried unanimously.

The following gentlemen were then elected members of the Association, *i.e.*, Messrs. Cecil G. Hare, H. C. Ingram, W. Paul, A. S. W. Mackay, H. J. Scott, A. Tudor Groves, R. M. Butler, A. N. Prentice, S. I. Adams, W. J. Feare, S. Ford, T. W. Fullerton, R. C. Foster, H. H. Whittington, N. A. F. Haslewood, E. R. Nixey, R. Tasker, M. E. Webb, E. J. Whitley, F. E. Whiting, A. Clavel Withers, J. W. Waite, G. Vey, W. N. Couldrey, B. Chaikin, A. A. Hands, W. T. Temple, A. Binning, H. Reaney, A. M. Millwood, P. O. Dunk, C. Gascoyne, S. W. Hill, J. R. Osborn, M. R. Martin, P. H. Topham, E. F. Ferry, A. E. Munby, A. Horsnoll, G. F. Royds, T. C. Pope, C. M. Harris, T. S. Atlee, W. G. de M. Wilkinson, J. H. Markham, L. Cohen, C. A. S. Vardy, W. Whymper, W. K. McDermott, G. D. Chimes Ross, G. G. Sigismund, and L. Morgan.

Mr. R. S. Balfour, Hon. Secretary, announced that the next meeting of the Discussion Section would be held on November 5, when Mr. H. M. Cautley will read a paper on "Buildings About a Farm."

The Chairman announced that the *conversazione* will be held at the Royal Institute of Painters in Water Colours, Piccadilly, on the 31st inst.

Homer and Architecture and the Crafts.

Mr. T. R. Spence then read the following paper :—

The aim of this paper is not to enter into vexed questions of archæology or the latest discoveries relating to archaic art and their relation to the life of Homer.

It is more in the nature of a fairy journey with him, noting the delicate and subtle suggestions on architecture and the crafts which interlace the expression of his joy in battle, and the lovely sea and land in which is set the story of his characters. He was the seer who "dipped into the future and saw the wonder that would be," for, we may take it, the art he described was more in the sense of a vision of its fruition. He gave in literature what Phidias gave in marble and metals. May not archaic work be the strenuous childhood of effort to materialise the conception of the seer? and only when Phidias came did his ideas reach their permanent ripeness and fulfilment.

How well he has suggested in the Odyssey a broad conception of architecture in speaking of shadowy halls, echoing galleries and fragrant chambers, and the value of the bath. His genius seems to have indicated most of the things in architecture and its accessories which are acceptable to those who find their joy in this great art. Any discussion on Homer and architecture really embraces all that is best in Greek art, so that the subject is a vast one. It is like accepting a brief for the scheduling of all that adds to the beauty and refinement of life in architecture. Of course, I mean one phase of architecture only, and my reverence is equally great for many others of widely distinct periods of expression in form and treatment; but here we have infinitely more than will suffice for this evening. The architecture that Homer gives largely appertains to stately dwellings; it is the hope of all students that commissions for such will reach them sooner or later. Recently architecture has suffered somewhat from persistent efforts to graft on to that architecture, which should be spacious, large, and dignified, such forms, shapes, and dimensions as appertain to the cottage or kitchen furniture.

Homer's appreciation for the decorative details of marble, colour, metals, &c., associated with architecture, seems to run on true schemes of harmony. Their gamut is not large (probably the better for that), and consists of gold, silver, ivory, and bronze, so that you feel he was familiar with the refinements of life and free from the tyranny of the commonplace. His heroes, during the delight of battle, were decked with magnificent beaten armour, ornamented in *repoussé* of gold and silver; some descriptions of such are quoted later, and we only need to refer to vase paintings, &c., to see how good was the general scheme of the armour of the best Greek period. In the "Iliad" we find the first reference to architecture in a suggestive passage on Priam's palace, "adorned with polished colonnades—and in it were fifty chambers of polished stone, builded hard by one another, wherein Priam's sons slept . . . and for his daughters over against them, on the other side within the courtyard, were twelve roofed chambers of polished stone, builded hard by one another."

Hephaistos plays a great part in the arts, he being the great craftsman in metal in the house of the gods. His own dwelling is described as being imperishable, star-like, a house of bronze worked by the crooked god himself, where he forged "tripods, twenty in all, to stand round his hall, and beneath the base of each he had set golden wheels, that of their own motion they might enter the assembly of the gods and again return unto his house, a marvel to look upon; this much were they finished that not yet were the ears of cunning work set thereon—these he was making ready and welding chains," &c.

Here follows the description of the shield of Achilles. It is carefully detailed at some length, but quite worthy of your attention, and gives, with a keen insight, all that goes to make magnificent subjects illustrating such incidents as embrace all those elements which are decorative. Here there is no lack of matter to fill with interest and beauty many friezes, and we know how difficult it is to find a *motif* or a subject that is really decorative in itself. "He threw bronze that weareth not in the fire and tin and precious gold and silver, and next he set on an anvil stand a great anvil and took in his hand a sturdy hammer. First fashioned he a shield great and strong, adorning it all over, and set thereon a shining rim triple, bright glancing. Five were the folds of the shield itself; and thereon he fashioned much cunning work from his wise heart. There wrought he the earth, and the heavens, and the sea, and the unwearying sun, and the moon waxing to the full, and the signs every one wherewith the heavens are crowned: Pleiads and Hyads and Orion's might, and the Bear that men call also the Wain, her that turneth in her place and watcheth Orion, and alone hath no part in the baths of Ocean.

Also he fashioned therein two fair cities of mortal men. In the one were espousals and marriage feasts, and beneath the blaze of torches they were leading the brides from their chambers through the city, and loud arose the bridal song. And young men were whirling in the dance, and among them flutes and viols sounded high; and the women, standing each at her door, were marvelling. But the folk were gathered in the assembly palace, for there a strife was arisen, two men striving about the blood price of a man slain; and both were fain to receive arbitrament; and the folk were cheering both as they took part on either side. And heralds kept order among the folk, while the elders on polished stones were sitting in the sacred circle, and holding in their hands staves from the loud-voiced heralds. Then before the people they rose up and gave judgment each in turn. And in the midst lay two talents of gold, to be given unto him who should plead among them most righteously.

But around the other city were two armies in siege with glittering arms. And two counsels found favour among them, either to sack the town or to share all with the townsfolk even whatsoever substance the fair city held within. On the wall there stood to guard it their dear wives and infant children, and with these the old men; but the rest went forth, and their leaders were Ares and Pallas Athene, both wrought in gold, and golden was the vesture they had on. Goodly and great were they in their armour, even as gods, far seen around, and the folk at their feet were smaller. And when they came where it seemed good to them to lay ambush, in a river bed where there was a common watering place of herds, there they set them, clad in glittering bronze. And two scouts were posted by them afar off to spy the coming of flocks and of oxen with crooked horns. And presently came the cattle, and with them two herdsmen playing on pipes, they took no thought of the guile. Then the others, when they beheld these, ran upon them and quickly cut off the herds of oxen and fair flocks of white sheep, and slew the shepherds withal. But the besiegers, as they sat before the speech places and heard much din among the oxen, mounted forthwith behind their high-stepping horses, and came up with speed. Then they arrayed their battle, and fought beside the river banks, and smote one another with bronze-shod spears, and among them mingled Strife and Tumult, and fell Death, grasping one man alive fresh wounded, another without

* See our issue for October 11, p. 315.

wound, and dragging another dead through the mêlée by the feet. Like living mortals, they held together and fought, and hurled the corpses each of the other's slain.

Furthermore, he set in the shield a soft, fresh-ploughed field, rich tilth, and wide, the third time ploughed, and many ploughers therein drave their yokes to and fro as they wheeled about. Whensoever they came to the boundary of the field and turned, then would a man come to each and give into his hands a goblet of sweet wine, while others would be turning back along the furrows fain to reach the boundary of the deep tilth. And the field grew black behind and seemed as it were a-ploughing, albeit of gold, for this was the great marvel of the work.

Furthermore, he set therein the demesne-land of a king, where hinds were reaping with sharp sickles in their hands some armfuls along the swathe were falling in rows to the earth, whilst others, the sheaf-binders, were binding in twisted bands of straw. Three sheaf-binders stood over them, while behind, boys, gathering corn and bearing it in their arms, gave it constantly to the binders; and among them the king in silence was standing at the swathe with his staff, rejoicing in his heart; and henchmen apart beneath an oak were making ready a feast, and preparing a great ox they had sacrificed; while the women were strewing much white barley to be a supper for the hinds.

Also he set therein a vineyard teeming plenteously with clusters, wrought fair in gold; black were the grapes, but the vines hung throughout on silver poles; and around it he ran a ditch of cyanus, and round that a fence of tin; and one single pathway led to it, whereby the vintagers might go when they should gather the vintage. And maidens and striplings in childish glee bare the sweet fruit in plaited baskets. And in the midst of them a boy made pleasant music on a clear-toned viol, and sang thereto a sweet Linos-song with delicate voice; while the rest, with feet falling together, kept time with the music and song.

Also he wrought therein a herd of kine with upright horns, and the kine were fashioned of gold and tin, and with lowing they hurried from the byre to pasture beside a murmuring river, beside the waving reed. And herdsmen of gold were following with the kine, four of them, and nine dogs, fleet of foot, came after them. But two terrible lions among the foremost kine had seized a loud-roaring bull that bellowed mightily as they haled him, and the dogs and the young men sped after him. The lions rending the great bull's side were devouring his vitals and his black blood, while the herdsmen in vain tarred on their fleet dogs to set on, for they shrank from biting the lions, but stood hard by and barked and swerved away.

Also the glorious lame god wrought therein a pasture in a fair glen, a great pasture of white sheep, and a steading, and roofed huts, and folds.

Also did the glorious lame god devise a dancing place like unto that which Daidolos wrought for Ariadne of the lovely tresses. There were youths dancing and maidens of costly wooing, their hands upon one another's wrists. Fine linen the maidens had on, and the youths well-woven doublets faintly glistening with oil. Fair wreaths had the maidens, and the youths daggers of gold hanging from silver baldrics. And now would they run round with deft feet exceeding lightly, as when a potter sitting by his wheel that fitteth between his hands maketh trial of it whether it run; and now anon they would run in lines to meet each other. And a great company stood round the lovely dance in joy (and among them a divine minstrel was making music on his lyre).

Also he set therein the great might of the River of Ocean around the uttermost rim of the cunningly-fashioned shield.

Now, when he had wrought the shield great and strong, then wrought he him a corslet brighter than a flame of fire, and he wrought him a massive helmet to fit his brows, goodly and graven, and set thereon a crest of gold, and he wrought him greaves of pliant tin."

In the Odyssey we learn more of the arts that appertain to home life and its hospitality. the provision for these things is mainly the architect's function, so that we may not pass them over. Bathing and anointing with olive oil and sweet herbs to end all fatiguing journeys and to precede all feasts. Much was made of guests arriving from either peaceful or warlike expeditions. They were led into the hall.

"They sat down orderly on seats and high chairs, and when they were come the old man mixed well for them a bowl of sweet wine, which now in the eleventh year from the vintage the housewife opened."

When Telemachus was welcomed at the house of Menelaus by his wife we find the following: "Helen bade her handmaids set out bedsteads beneath the gallery, and fling on them fair purple blankets and spread coverlets, and thereon lay thick mantles to be a clothing over all. So they went from the hall with torch and spread the beds, and the henchmen led forth the guests. Thus they slept there on the outer gallery of the house—the hero, Telemachus, and the splendid son of Nestor."

Again, when Telemachus and his men had "tilted his chariot against the shining faces of the gateway, and led them into the hall divine, and they beheld and marvelled as they gazed through the palace, for there was a gleam as it were of sun or moon through the lofty palace of renowned Menelaus. But after they had gazed their fill, they went to the polished baths and bathed them. Now when they had bathed and annointed them with olive oil, and cast about thick cloaks, they sat on chairs by Menelaus, and a handmaid bore water for the hands in a goodly golden ewer and poured it forth over a silver basin to wash withal, and to their side she drew a polished table and laid upon the board many dainties." When they had put from them "the desire of meat and drink," there comes a finely-expressed speech of thanks from Telemachus. To quote: "Son of Nestor, delight of my heart, mark the flashing of bronze through the echoing halls, and the flashing of gold and of amber, and of silver and of ivory. Such like, methinks, is the court of the Olympian Zeus within, for the world of things that are here; wonder comes over me as I look thereon." A portion of the reply of Menelaus should be quoted: "Yea, for after many a woe and wanderings manifold I brought my wealth in ships. I roamed over Cyprus and Phœnicia and Egypt and reached the Æthiopians and Sidonians and Erembi and Libya."

Here is another passage bearing on the domestic life: "Helen came forth from her fragrant vaulted chamber, like Artemis of the golden arrows; and with her came Adrastê and set for her the well-wrought chair, and Aleippê bare a rug of soft wool, and Phylo bare a silver basket which Alcandrê gave her, the wife of Polybus, who dwelt in Thebes of Egypt, where is the chiefest store of wealth in the houses. He gave two silver baths to Menelaus and tripods twain and ten talents of gold, and besides all his wife bestowed on Helen lovely gifts; a golden distaff did she give, and a silver basket with wheels beneath, the rims thereof were finished with gold," &c.

Other quotations follow bearing on the matter: "Helen stood by the coffers wherein were her robes of curious needlework which she herself had wrought." Menelaus to Telemachus: "And of the gifts such as are treasures stored in my house I will give thee goodliest and greatest of price. I will give thee a mixing bowl beautifully wrought; it is all of silver and the lips thereof are finished with gold—the work of Hephaestus."

Throughout the whole of Homer's writing there is evidence of a close acquaintance with the treasures of art of many races, and the examples of these may have fired his imagination; but it is not my function to enter into this wide field of archæology and conjecture. In the descriptions handed down by ancient writers of the work of Phidias and his pupils, there is the great statue of Zeus, with which no other artist can compete, a statue of large proportions carved in gold and ivory, seated on a throne holding in his right hand a figure of victory and a sceptre, capped with an eagle in his flight. His garment was covered with low-relief sculpture of figures and lilies. On the throne and footstool were mythological conceptions worked in relief and colour. The rests for the footstool were lions in gold. The head of the god was not passionate or distorted in expression, but calm, majestic, and god-like; and through the whole work of figure, throne, and canopy was that rare sense of refinement and impressive distinction in design which should stamp a supreme piece of art. Then there was the great statue of Athene on the Acropolis, and the incomparable frieze; but his supreme position and works in the world are too well known for me to take up your time in enumeration, uniting, as it does, all that is perfect in craftsmanship and dignity of design. Many quotations might be given from the "Odyssey," but probably the following will suffice as bearing on architecture:—

"Meanwhile, Odysseus went to the famous palace of Alcinous, and his heart was full of many thoughts as he stood there, or ever he had reached the threshhold of bronze, for there was a gleam, as it were, of sun or moon through the high-roofed hall of great-hearted Alcinous. Brazen were the walls which ran this way and that from the threshold to the inmost chamber, and round them was a frieze of blue, and golden were the doors that closed in the good house. Silver were the door-posts that were set on the brazen threshold, and silver the lintel thereupon, and the hook of the door was gold. And on either side stood golden hounds and silver . . . . and within were seats arrayed against the wall this way and that from the threshold even to the inmost chamber, and thereon were spread light coverings thinly woven, the handiwork of women. . . . . Yea, and there were youths fashioned in gold, standing on firm-set bases, with flaming torches in their hands, giving light through the night to the feasters in the palace. And he had fifty handmaids in the house, and some grind the yellow corn on the millstone, and others weave webs and turn the yarn as they sit restless as the leaves of the tall poplar trees, and the oft oil drops off that linen, so closely is it woven. . . . And without the court hard by the door, is a great garden of four plough gates, and a hedge runs round on either side, and here grow tall trees blossoming, pear trees and pomegranates and apple trees with bright fruit, and sweet figs and olives in their bloom. The fruit of these trees never perisheth or faileth, winter nor summer, enduring all through the year evermore; the west wind blowing brings some fruits to birth and ripens others. Pear upon pear waxes old, and apple on apple, yea, and cluster ripens on cluster of the grape, and fig upon fig. There, too, hath he a fruitful vineyard planted, whereof the one part is being dried by the heat, a sunny plot on level ground, while other grapes are gathering, and yet others they are treading in the wine-press. In the foremost row are unripe grapes that cast the blossom, and others there be that grow black to vintaging. There, too, skirting the furthest line, are all manner of garden-beds planted trimly, that are perpetually fresh, and therein are two fountains of water, whereof one scatters his streams all about the garden, and the other runs over against it beneath the threshold of the courtyard and issues by the lofty house, and thence did the townsfolk draw water."

The greater part of this applies to the garden, but as many architects now include schemes for laying out gardens in their plans it should be of interest.

The following quotation may be added which bears on the reception and treatment of a guest, necessarily associated with domestic architecture:—"Pontonous, the henchman, set for him a high chair inlaid with silver, in the midst of the guests, leaning it against the tall pillar, and he hung the loud lyre on a pin, close above his head, and showed him how to lay his hands upon it, and close beside him he placed a basket and a fair table, and a goblet of wine by his side . . . . after they had put from them the desire of meat and drink, the Muse stirred the minstrel to sing the songs of famous men."

It seems to me that the architect Ictinus and Phidias have petrified the dreams or prophecies of Homer, so that we can in a measure believe they were one in architectural design, the one finding his expression in words and the other in such material elements which embody architecture and give it a local habitation and a name.

It should be our function to gather the threads together of what makes Greek art so great, and I can only indicate some things which occur to me as evidence. These I submit with some diffidence, not being an expert or having my mind charged with a great store of knowledge of the vast field of Greek architecture.

From what I have seen in Greece, the perfection of the workmanship of every detail in the architectural remains is very patent—from the perfect arises of fillets and flutes of the immense Doric columns, the soft and accurate curves of the volutes in the Ionic caps, the daintiness, finish, and shape of the egg and tongue and other details of acanthus

leafage on horizontal mouldings; the fine, sinuous uniting curves, and relief of the acanthus when used in larger and detached forms; the true and delicate contours of their mouldings and the juxtaposition of larger flat curves with smaller incised and sharply cut members; the sense of decoration they get in soft horizontal lines of shadow being picked up and accentuated by the sharp incisive darks below.

The evidence of reserve in the disposition of ornament—if their ornament was full of nice detail so was it laid on a quiet field, and thus lost none of its value. This vignetting of the sculptor's jewels is a most commendable feature in architecture.

The satisfactory way in which their bas-relief panels filled up the space they were to adorn—the subject filled the space fully and with dignity, the heads not slipping far below the top moulding. What could be better in this respect than the frieze of the Parthenon?

In their groups of ornament note, notwithstanding much small work in parts, running through are always larger curving, uniting forms so that the general effect is in no way belittled, but delicacy and breadth of expression is maintained.

Note the coins of the best period, how "largely" the heads fill the circle. How fine and dignified is the convention or design of the hair and other accessories. How the lions, the goats, the bulls, have those parts accentuated which express their attributes, forerunner of the same sense as is seen in animal forms in the early heraldry of the Middle Ages. It may appear curious to cite coins in speaking of architecture, but their sense of largeness and true invention contains that which makes fine architectural ornament. Whatever may be the period or style of architecture in which it is your destiny to work, the storing of these details just mentioned in the cells of the mind should create such an innate sensitiveness to bad proportion, clumsy forms, and imperfect workmanship as would form a large proportion of an architect's education.

Their candelabra are fine in contour and ornamentation of curved forms and the right distribution of mouldings, with long spaces between on the shafts.

The real Greek lyre is a fine example of design as seen on the coin. In modern times there is no poor instrument that has been so tortured away from its great prototype. The stage property-man has much to answer for in this respect.

Our incomparable British Museum is a treasure house of Greek art and there you may note how satisfactorily many things relating to architecture are accomplished. See how the groups of sculptors in the Parthenon pediment fill the triangular space and, as you may know, this has not always been done in modern buildings with success. The high reliefs of the figures in the metopes show a fine expressive crispness suitable to their position. The frieze, which, of course, comes within the shadow, has a treatment of another kind, comparatively low in relief, yet giving a fine sense of breadth and refinement. At the first glance you think that the great purple shadows on Greek architecture are lightless, but on examination such is the quality of the iridescent light, innumerable soft reflections play on these reliefs and give them more definition and harmony. Well, in such juxtapositions where two ways of treatment are involved, the result is an added value to each form of detail. This also applies to mouldings and other forms of decoration. The architects of the Italian Renaissance have treated the ornamentation and profiles of mouldings with a charming variety and liberty. Mino de Feisole is about the best in this way. Yet do not start from Mino de Feisole in your efforts to add further interest to such detail; rather add your invention to the purer Greek forms.

The Museum contains in the Archaic room an Ionic capital from the Temple of Ephesus, which seems to me the perfection of treatment in the volutes—so soft, yet large and truly architectural. It seems to me to be finer than those of the Erectheum.

Note in some of the statues how broad and searchingly expressive of the contours of the figures are the draperies, yet when leading away from the figure how they are licked up into crisp and expressive lines which would show against the sky or other background (especially in those statues that are to express movement).

In the Museum you will notice how architecturally that noblest of decorative animals, the horse, is treated. Note how fine and complete in design is the gravestone No. 599.

It may be contended that there is not much to be learned of architecture proper from Homer, yet I venture to think that what he says of it is of significance and interest to those practising this art, for by that means they will be led to take a deep interest in the efforts of later Greek architects and artists to illustrate or build up into permanent form his imagery. The examination of their achievements will result in an education. Really, beauty is required of you on special occasions, apart from that which is scientific or constructive. You cannot give beauty to your work by a paragraph in the specification. Now the world expects you, over and above perfect planning, construction, and sanitary excellence, that crown which we name beauty, and which Jules Breton has defined as "the splendour of the true."

Please do not think that your task is to reproduce only from the cells of memory the best details of the Greek or any other period; but think how much can be gathered from their sense of proportion, the value of plain spaces, and the vignetting and placing of such adornments as their sculptors, painters, and metal craftsmen could supply.

To me the clothing of the Greeks ranks, as costume, very high, if not the highest, as a motif for the architectural sculptor. It does not seem an invention of pushing tailors. It is of the simplest construction, and follows and accentuates all the sinuous motions of the figure. Its lines are endless in variety, and can be governed by, and made subservient to, the sculptor's aims. What perfect gems in design, craft and line are the best Tanagra figures, as you may observe in the British Museum, mostly illustrating quiet domestic incidents, but there is in the museum in Athens several examples showing remarkable and vigorous technique in the expression of the swirl of the dance.

The best mediæval costumes bear a close relationship to those of the Greek. Then, again, the symbols of their religion, as seen in the Parthenon frieze, are of refined and decorative forms. The late Lord Leighton uses them with great effect in his picture, "The Daphneforia," I venture to say, one of the finest decorative pictures ever painted. Although it represents another form of festival than that on the Parthenon, it always leads me to realise how great as a decoration in form and colour must have been the actual procession which Phidias illustrates. We can imagine it on its progress along the sacred way, winding through the shallow valleys, and anon outlined against the blue and sapphire of the Saronic Gulf and the Peloponesian mountains.

We gather from Homer a fine sense of site for his architecture, as he mentions in his descriptions of the House of Alcinous as having a fair prospect. Then, again, a later writer speaks of Athens as the "City of the violet crown," the crown being the Parthenon.

I can speak from experience of the site of the House of Agamemnon on the lower spurs of the mountains of Argos. Behind are the higher peaks, and far away below stretch the plains of Argolis. As Homer phrases it, the pasture land of horses, and beyond the boundaries of this plain lies the blue shimmering bay of Nauplia. On speaking of Greek landscape with its long, horizontal lines of blue seas and grey-green plains, from the boundaries of which rise the broad and dignified mountain forms, all bathed and united in the iridescent air of that divine land, makes it an unequalled source for instilling into an architect such a sense of colour for decorative purposes as cannot be obtained from textbooks of coloured ornament.

This reference to landscape may seem a wandering away from architecture, but on source of inspiration is unworty. Most architects have a deep interest in interior colour, but many cherish as their only idols schemes of grey-greens and reds, avoiding that which is sumptuous in colour. When you get over the wall of the Swiss Alps revelations come upon you that the diffused purple has harmonies equally beautiful. In Greece, all the greens, blues, and greys, &c., seem to be steeped in a bath of purple. This veil of purple iridescent atmosphere is the magician which assimulates and brings all local colour into decorative completeness. Unfortunately, we cannot bring the quality of the sunlight here, but still remembrance of these things has an educational value.

An architect's life and practice is, we know, inextricably mixed up with specifications, quantities, dilapidations, sanitary and other engineering, *et cetera*. There is no escaping the well-known ending to specification paragraphs—the very convenient *et cetera*. Yet sometimes the opportunity comes when a fine creation is demanded of him in which all these things for the moment are of secondary importance—when, like Homer or Shakespeare, he must give to airy nothingness a local habitation. Even as seeds in the idle fallows long for the gentle rains, so will he sigh for that enthusiastic and supersensitive state of mind from which creation is won. My remarks may have been of a wandering nature, but apart from the science and ever-changing needs of architecture, it is a great and beautiful art, and to give it that crown of art or beauty, air of distinction or style—call it what you will—that subtle seal which Phidias, Bramante, Wren, Inigo Jones, the great Goths, and many others have set upon their work, some little deviation in the side paths of the softer emotions cannot be a fruitless journey. Whatever may be the perfection of the anatomy of the parts of your architectural work, it can never suffer from wise and restraining disposition of its bejewelling.

Frankly a great architect must possess many gifts. He must have that which is generally known by the words common sense; it is rather a clumsy phrase, which means so much, for it really embraces a subtle practical wisdom, a sense of winnowing the wheat from the chaff, and as far as architecture is concerned, a thinker in building material rather than in pencil. I venture to say he must have added to these qualities the instincts of a poet to finally set that seal of completeness on his conception which makes a work of art.

Mr. John Slater, in proposing a vote of thanks, said they had all listened with very great interest to what he might call the "prose poem" Mr. Spence had favoured them with. He was bound to say that Mr. Spence had taken a line which was rather different from what he had expected, but perhaps Mr. Spence was wise in doing so, as although, from the excavations which Dr. Schliemann had made, we had been able to gain some sort of an idea of the plan of a Trojan house, he did not think much was known about the exterior or interior elevations of the same. It appeared to him that very much the same thing had happened on the hill of Hissarlik, which Schliemann excavated, as happened to the poems themselves. On this hill, as they knew, as Dr. Schliemann carried the excavations down deeper and deeper, he found that one city had been built on another—one passed away, and another was built and so on, so that there were accretions on this hill of all sorts as the centuries went on. He thought that much the same occurred with the Homeric poems. There was no writing or printing in those days, and the bards simply committed to memory the poems relating to the legendary heroes of Greece and recited the exploits of these heroes. It was inevitable that in the course of time various accretions were made to the poems, and they were not quite the same as the early ones. There could be no doubt about that, and he was disposed to think that it did not do to take the descriptions too literally of the palaces which Homer gave. Even in the quotations Mr. Spence had read it would be noticed that almost exactly the same words occurred, almost word for word, in the description of the beautiful palace of Menelaus as in that of Alcinous, and he had little doubt that these similar descriptions arose from the bards having in memory the words of a particular beautiful palace and using them to describe another palace. There was no doubt that the precious metals were largely used in decorating the houses which may have existed, but in one of these descriptions the looker-on says that the palace might almost be taken to be the palace of Zeus. Well, if they read the descriptions of any legendary or ideal grand buildings, such as were to be found in the Apocalypse, or in the description of Solomon's temple, they would realise that the writers exaggerated; they knew what barbaric splendour and colour were, and they thought that the more of this they could introduce in their poems the more it would appeal to their public

and the more impressed the public would be. He did not think, therefore, that these poems should be taken literally; they should be taken, as they were probably meant to be taken, as poems composed for the purpose of exciting the imagination of the listeners. The general drift of Mr. Spence's paper seemed to be to impress upon students the great desirability of filling their minds with the beauty of Greek work, and that advice could not be taken too much to heart by students of architecture. We know how greatly the Greeks loved beauty of all kinds. As we know, they were in the habit, without any feeling of shame or prudery, of seeing at the gymnasium or the Olympic games the beauty of the undraped human form, and they acquired a love of beauty which northern nations never had or never could have. How the Greeks must have been impressed by the love of beauty and the effect it had on them, the story of Phryne tells us. He had been glad to read in the early part of the paper the warning of what had gone on in architecture at the present time. Mr. Spence said: "Recently architecture has suffered somewhat from persistent efforts to graft on to that architecture, which should be spacious, large, and dignified, such forms, shapes, and dimensions as appertain to the cottage or kitchen furniture." The President in his address at the last meeting urged students to find out for themselves what constituted the beauty of the art of architecture in various periods, and a few months ago, when he (the speaker) read an address to students, he tried to impress that upon them. To find out for themselves *why* things are beautiful was the better for them, for the better appreciation they would have of architecture. As to the crafts alluded to in the poems, Mr. Spence had paid more attention to them than to architecture, but that seemed to be inevitable.

Mr. R. Phené Spiers said he had listened with great interest to the paper, but the first paragraph, in which Mr. Spence said he should omit everything of an archæological nature, cut the ground from him (the speaker) to a certain extent. Of late years he had been much interested in the discoveries which had been made by Dr. Schliemann and others who had tried to work out the problem of the ancient houses; and facts as to that Mr. Spence did not and, it seemed, did not intend to deal with. He was inclined to think that Mr. Spence had taken the right course, for, after all, it was only an archæological question as to what Homer meant, and he was not sure that students were much interested in that. Their studies did not lead them in that direction, and he did not think that they would altogether appreciate the arguments pro and con for this or that sort of plan. He thought Mr. Spence had taken the right line in pointing out the great beauty of Greek work, and in suggesting to the young architect that building construction, and specifications, tracing, &c., should not take up all his thoughts, and that there was a higher conception of architecture, *i.e.*, its poetical aspect, and that that should inspire him. The paper was really of value as showing the young architect that he must study more than the practical part of an architect's profession. Mr. Spence, in the early part of his paper, seemed to think that Homer, in his elaborate description, rather foreshadowed that which was eventually to be produced by the works of Phidias. Mr. Spence said that if we saw what Homer saw and based his descriptions on, we should think it barbarous compared with later work, though we should probably take an interest in it from the craftsman's point of view. That seemed a very true remark. One must interpret Homer, and not forget the poetic imagination in the poems. The elaborate description of the shield of Achilles referred to such an enormous number of subjects that were worked into it that it seemed almost incredible that so many subjects could be dealt with; but if they looked at Flaxman's shield, a cast of which was to be seen at the Royal Academy, they would be astonished at the number of subjects on that and the amount of interest in it. In the early shields the artists did not hesitate to cut off and divide the spaces and put a subject in each space, their object often being to illustrate the mythology of the ancients. The treatment was similar to what was found in embroidery work of the last century, in which a story was told in a number of small squares. Very likely the shield of Achilles was treated in that way Later and more accomplished artists got the necessary subjects without necessarily dividing and sub-dividing. Mr. Spence gave Homer's description of the elaborate intermingling of the metals in various ways, and one could not help thinking of the present times compared with forty years ago. There was an immense difference in the sculpture work in the two periods. It was about forty years since he first entered as a student of the Royal Academy, and he remembered going through the rooms and noticing the monotony of the exhibition of sculpture. In an exhibition at the Academy nowadays a great difference was noticeable. He need only mention two sculptors, Mr. Gilbert and Mr. Frampton, and their works in bronze and enamel, to indicate how great the change had been for the better. Such a paper as they had had, and the quotations from Homer, should inspire modern sculptors, and one would imagine that if it was possible in those past days for men to weld into beautiful forms, there could be, or should be, no reason why in this twentieth century one should not attempt to do the same. The great work by Phidias of the gold and ivory statue would probably be beyond us, but it had been attempted. He recollected that one of the French sculptors made a statue for the Duc de Luynes of gold and ivory. It was on a small scale, and it was only an attempt to realise what the famous statue of Phidias was like. It was a question whether Mr. Spence was right in his use of the word "amber." There was a metal which was referred to in several works on ancient Greece as "electron," and it was more likely that than amber, for it was not known that the ancient Greeks had amber; and, besides, amber did not shine, so that the metal was probably some amalgam of the two metals. He desired to second the vote of thanks to Mr. Spence for the trouble he had taken in going through the Iliad and Odyssey to extract the quotations which he had read, and for bringing the subject before them in so poetic a way.

Mr. J. D. Crace, in supporting the vote of thanks said the paper would be of great value to those who were beginning their careers as architects. He thought that no poet's imagination was altogether independent of things that had been seen, and the descriptions of the palaces of Alcinous and Menelaus seemed to indicate that the poet must have seen or heard about such palaces—had seen or heard something that, while not so elaborate or gorgeous as the descriptions suggested, seemed to imply the existence of the things described so finely. He thought it was extremely unlikely that the poet would describe beautiful embossed armour if he had not seen something of the kind, and in describing the golden gates he was describing, not in detail but in generalities, gates which must have existed. Of course, as to the splendours of architecture, there exist Egyptian monuments which go back very far, and it must not be forgotten that Homer represents Ulysses as speaking of having gone into Egypt and Libya, and in doing so showed some familiarity with those countries, and possibly with their monuments. It was interesting to recall the fact of the frequency of the mention of golden gates in ancient writings. They were mentioned not only in Homer, but in the scriptural descriptions of Solomon's Temple, and also in the removal of the plates of gold from the doors of the Temple by Hezekiah. Evidences of golden gates were to be found in the British Museum, where could be seen strips or thin plates of metal, with which the gates were formerly plated, and which were delicately worked in low relief with processions of horsemen and others, and probably gilt. Homer must have had opportunities of seeing or hearing about such gates that resembled gold, which were elaborately carved, and there was no reason to think that these descriptions were altogether poetical phantasms. There were many touches in the poems which were delightful, as showing the refinement with which Homer treated very ordinary subjects. One such touch occurred at the beginning of the poem, where Telemachus goes to meet Pallas, who is in the disguise of Mentes, and as he welcomes him into the palace he takes his spear from him, and places it against a pillar which had been made fair with sculpture. That was very suggestive, and one wondered whether the poet had seen a pillar with fair sculpture. It might have been the capital only, but the allusion seemed to suggest more than that. It must not be forgotten that the poem was probably the work of more than one mind, and many of the descriptions of architecture or the arts may have been interpolated, but in any case, they were interesting records. In the matter of the architecture of what might be called prehistoric Greece, a very interesting illustration had been presented by Sir L. Alma Tadema's design for the scenery for the play of Agamemnon. The palace of Agamemnon was shown full of details carefully studied and treated in a very rich and interesting manner.

The Chairman, in putting the vote of thanks, said he did not think Mr. Slater had put it too strongly in referring to the paper as a "prose poem." It was a paper which afforded more to think about than to talk about. Mr. Spence had referred to the value of contrast in design, meaning, no doubt, the contrast of plain space with ornament, and there was one photograph there that evening, a photograph from a picture of Mr. Spence's, which illustrated the idea very forcibly. Connected with the study of Greek architecture in England was this disadvantage, *i.e.*, climate. It seemed to him that for any one to appreciate properly the beauty of Greek art, it was necessary to see it in the atmosphere of Greece. He had not studied it himself in that way, but he could imagine what the effect must be of the iridescent light on the marble. Toned by time, and under the sky of Greece, and in that climate, the examples of Greek art, which in this country might seem cold and uninteresting, must seem very charming.

The vote of thanks having been agreed to,

Mr. Spence, in reply, said as to the Chairman's remarks about Greek art seen under the sky of Greece, when he returned from Athens he went straight to the British Museum to see the friezes, and he was very much disappointed, because the fragments there were destitute of colour. There were warm flashes of amber running through the marble of Greece, and all kinds of colour produced by the weather. The marble of Pentelicus seemed in the beautiful atmosphere to take up all kinds of delightful colour, which made them look as though cut in gems. When he advocated the study of it he did not mean that that was the only kind of architecture they should study. From Greek architecture he thought they got a sense of refinement and reserve which was of extreme importance in the treatment of any other style of architecture.

The Chairman announced that the next meeting will be held on November 7, when Mr. F. C. Eden will read a paper on "Roof Coverings."

The meeting then terminated.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

An Eastern Counties' meeting of the members of the Association of Municipal and County Engineers was held at King's Lynn on Saturday, October 18. The members assembled in the Council Chamber of the Town Hall, where they were received and welcomed by the Mayor (Mr. T. H. Bagge). Mr. T. H. Yabbicom, C.E., of Bristol, President, occupied the chair, and there were present Messrs. A. E. Collins, Norwich; E. Buckham, Ipswich; J. W. Cockrill, Great Yarmouth; F. C. Grimley, Weedon; E. J. Silcock, Leeds; H. J. Weaver, King's Lynn; J. Clare, Sleaford; A. F. Scott, Cromer; Foulshaw, Peterborough, &c.

The Mayor offered the members a hearty welcome, and hoped they would find something to interest them in the engineering works of the borough.

The President thanked the Mayor for inviting them to that ancient and interesting town, and for giving them so cordial a welcome. In his historical sketch of the town, Mr. Weaver had carried them back to the time of the granting of the charter by King John. Coming down to modern times, the town was associated with Eugene Aram, and, in the middle of the eighteenth century, Frances Burney, whose father wrote of the town, "Lynn was a town of merchants who imported wine, and brewers who exported beer, chiefly to the Baltic; a town where the adventurous settled, to rise if they could into the powerful Corporation; a town of high living rather than of high thinking." He added, "He was ill at ease when playing an execrably bad organ to foggy aldermen, totally ignorant of music." They did not know anything of the musical talents of the aldermen, but he (Mr. Yabbicom) was quite sure, after glancing through Mr.

Weaver's paper, that the aldermen and councillors of King's Lynn were by no means foggy, but had risen to the occasion, and were carrying out their duties for the health and benefit of the citizens in a manner which reflected great credit on the town.

Mr. Cockrill, Borough Engineer of Great Yarmouth, was re-elected Honorary Secretary for the Eastern Counties district.

Mr. H. J. Weaver, Borough Surveyor, read a paper on "Five Years' Municipal Work in King's Lynn." He said the town was about 1½ miles long and over half-a-mile broad, and had an area of 3,061 acres, with a population exceeding 20,000. Extensive ruins of the old town wall, which encircled the land side of the town, still exist, and the south gate of it—a fine tower with a lofty archway for carriages and two smaller ones for pedestrians—was in excellent preservation. The Guildhall, formerly the hall of the Trinity Guild, had a chequered front of flint and stone with Gothic windows, and included under its roof assembly rooms, council chamber, committee-rooms, mayor's apartments, and a complete suite of offices for the Corporation officials. The custom house on the Purfleet was erected in 1683. It occupied the site of a religious house which belonged to the Trinity Guild, and was a mixed Greek style of architecture with a curious pyramidal roof surmounted by a small open turret, terminating with a pinnacle at a height of 90 ft. The Stanley Public Library was in St. James's-road; it was erected in 1883, and was presented to the town by the late Earl of Derby, K.G. In former years the space between the town and the open sea was obstructed by huge banks of mud and sand formed by the rapid action of the tide over the bed of the river, and the passage to the harbour was by a narrow and intricate channel. These evils were, however, corrected by the construction of a direct channel four miles long, which was commenced in 1850, and had resulted in the gain of a large tract of land on the bank of the Ouse on the northern side of the town. A new dock, the Alexandra, constructed in 1867-9 at a cost of 80,000*l*., contained a water area of 6¾ acres. An important addition to this was made in 1884, when the Bentwick Dock, 1,000 ft. long by 400 ft. wide, was opened for traffic. The estate of the King's Lynn Dock and Railway Co. covered an area of over 100 acres, and in addition to the docks included every convenience for the shipment and discharge of cargoes, together with a branch railway which connected the dock with the Great Eastern, the Midland and Great Northern, and London and North-Western Railways. Prior to the new waterworks being carried out, the old supply was drawn from the Gaywood river, which rises some seven miles away at the village of Grimston, issuing from the chalk springs in the district. The question of an entirely new supply became imperative, as the result of an inspector of the Local Government Board tracing the cause of an outbreak of typhoid fever to the contaminated water supply. The new works, which were completed in 1899, were designed by Mr. E. J. Silcock, M.Inst.C.E., of Leeds, who was at the time Borough and Water Engineer of Lynn. The site selected was seven miles to the east of the borough, at the village of Gayton, and consisted of two wells sunk in the hard chalk, 14 ft. apart, centre to centre, each 6 ft. 2 in. in diameter and 100 ft. deep, both being steined with concrete varying in thickness from 14 in. to 6 in. At the bottom of the western well were two headings, each 6 ft. high and 4 ft. wide; one was driven for a distance of 153 ft. to the south and the other 213 ft. to the north. At the bottom of the eastern well a third heading was driven to the east for a distance of 293 ft., and in this well a borehole 8 in. in diameter was sunk to a depth of 63 ft. The bottoms of the wells were 32 ft. above Ordnance datum. The plant was in duplicate and all parts interchangeable. It consisted of two sets of boilers, engines, and pumps, which were made to deliver respectively 1,000,000 gallons and 1,250,000 gallons of water per day through 6,243 lineal yards of 15 in. rising main to the reservoir at Bawsey. The head, due to friction in the rising main, was 15 ft., so that the total head against the pumps was 123 ft. The engines were of the horizontal, compound, triple expansion type, and had lately been so arranged as to run coupled together, and work both sets of pumps. The requirements of the contract were as follows:—1. The engines to be capable of pumping 1,000,000 gallons of water from the wells at Gayton to the reservoir at Bawsey in twenty-three hours. 2. The engines to give an efficiency of one pump horse-power to every 21½ lbs. steam consumed per hour. 3. The boilers to evaporate 9 lbs. of water per lb. of coal. The subsoil consisted of boulder clay. The walls were constructed of cement concrete composed of one part of cement, two parts of sand, and four parts of shingle. They varied in thickness from 5 ft. at the base to 18 in. at the top, and were lined with 4½ in. of brickwork set in cement. Their height was 14 ft., and the top of the reservoir was 11 ft. above the ground level. The floor was composed of cement concrete 18 in. thick, and where it supported the columns, carrying the roof, it was 3 ft. 6 in. thick. It was in the form of a series of inverted arches, springing from the base of the columns, and had a 4½-in. lining of brickwork set in cement. The roof was constructed of 4½-in. brickwork, in a series of arches, which were carried by cast-iron girders. When the reservoir was full it contained 1,000,000 gallons. The internal dimensions of the reservoir were 140 ft. by 100 ft. The rising and gravitation mains were fitted with sluice valve at the lowest points, and air-valves were fixed at the summit of each hill. The whole of the above work was carried out at a cost of 30,761*l*. The daily quantity of water supplied through the water mains to the borough in 1898 amounted to 1,150,000 gallons, or 57½ gallons per head. Early in 1899 the author strongly urged the Waterworks Committee to adopt a complete system of waste water detection, the enormous quantity pumped into the town at that time being such that the new supply was unable to keep it going. Thirteen 6-in. Deacon waste-detection meters were fixed, and the town divided into districts, each of which was governed by a meter; stopcocks were fixed on every service, and valves so arranged on the mains as to command each street and section of district. Two night and two day inspectors were appointed, the duty of the former being to sound at night each stopcock with a stethescope, first with the stopcock open, and then with it closed, in order to ascertain and locate the leakage, if any. These inspectors made a daily report to the day inspectors, who visited the houses reported and took the necessary action to meet each case. The result of the working of the scheme had been that over 20 gallons per head per day had been saved, so that instead of an average of 57½ gallons per head, 37 gallons were now used; and the author was convinced that although underground leakages were very few, the latter amount could still be further reduced by from 7 to 10 gallons per head by the Waterworks Committee taking action and prosecuting persons for wilful waste; but beyond this it appeared to be quite impossible to reduce it, as in a town similar to Lynn, with sewers of very flat gradients, necessitating constant flushing, also fish-washing, cockle-boiling, water used by the docks and railway companies and breweries, an unusual amount must necessarily be consumed. The existing fire station was most inadequate and uncentral, and the question of providing a new one was under the consideration of the Council; the author had prepared plans for a new station, which would include hose tower, stables, and all other conveniences. The Corporation also made all concrete slabs for footpaths, which cost about 2s. 6d. per square yard. This found work under cover for men during wet days, and at the same time the slabs were made cheaper than they could be bought and delivered to Lynn. The Health Department had also been most active. During the last four years, 1,600 privies had been abolished and modern water-closets fixed. It was estimated that not more than thirty old cesspits remain, and the next few months would, he hoped, see the last of them removed. Courts, alleys, and yards, with which old towns were unfortunately troubled, had received their share of attention, and no less than 280 had during the above period been either repaved or redrained and made sanitary. The infectious diseases hospital was a red brick building having two separate wards, male and female, with a frontage of 77 ft. 6 in. It had bed accommodation for twelve patients. In the centre was the nurses'-room, also a bathroom. The administration block, which consisted of nurses' bedrooms, bedroom and sitting-room for the resident caretakers, pantry, scullery, kitchen, and wash-house, was connected by means of a covered way. The inclusive cost of the hospital amounted to 1,200*l*.

The small-pox hospital was situated about a mile outside the town. Previous to the new sewerage scheme which had just been completed, no system of sewerage could be said to have existed. There were very many outfalls to the river of various sizes and kinds of construction. In 1887 Mr. E. G. Mawbey, M.Inst.C.E., Borough Engineer of Leicester, who was at that time Borough and Water Engineer of King's Lynn, prepared and presented to the Corporation a scheme for sewering the town, but this was not proceeded with at the time, and on Mr. E. J. Silcock becoming Borough Surveyor of Lynn he designed a scheme which had been carried out. It differed somewhat from Mr. Mawbey's scheme, inasmuch as it practically divided the borough into four drainage districts, each having a separate outfall, known as the South, Millfleet, Purfleet, and North districts, whereas Mr. Mawbey's scheme collected all these districts to one point, which was at St. Ann's Fort, North End, and from thence to the river by means of a large outfall sewer. Mr. Silcock, however, claimed that his scheme could be carried out at a less cost, and that such deep sewers would not be necessary; also that better gradients could be obtained. The combined system had been adopted, so that they had the one set of sewers carrying both surface water and sewage. Each of the four districts had a sufficient storage culvert to hold the sewage during tide-locked periods, and the culverts discharged through tidal gates in a confluent state into the river at low water. The total cost of the scheme amounted to 27,713*l*. The author had prepared a similar scheme for sewering South Lynn, a district which had grown considerably lately. The outfall would be into the River Ouse, between the railway bridge and the free bridge at South Lynn, which was about one mile from the centre of the town. The storage culvert, to which a penstock was fixed, was of cast-iron flange-pipes where it crossed the foreshore, and the remainder was constructed of red brick, with a blue brick invert. Hassall's patent jointed stoneware pipes would be used, and ventilation provided by means of shafts and manhole covers.

In the discussion which followed,

Mr. A. E. Collins, Norwich, said he understood in times past there used to be a system of septic tanks to each house with overflows to the sewers.

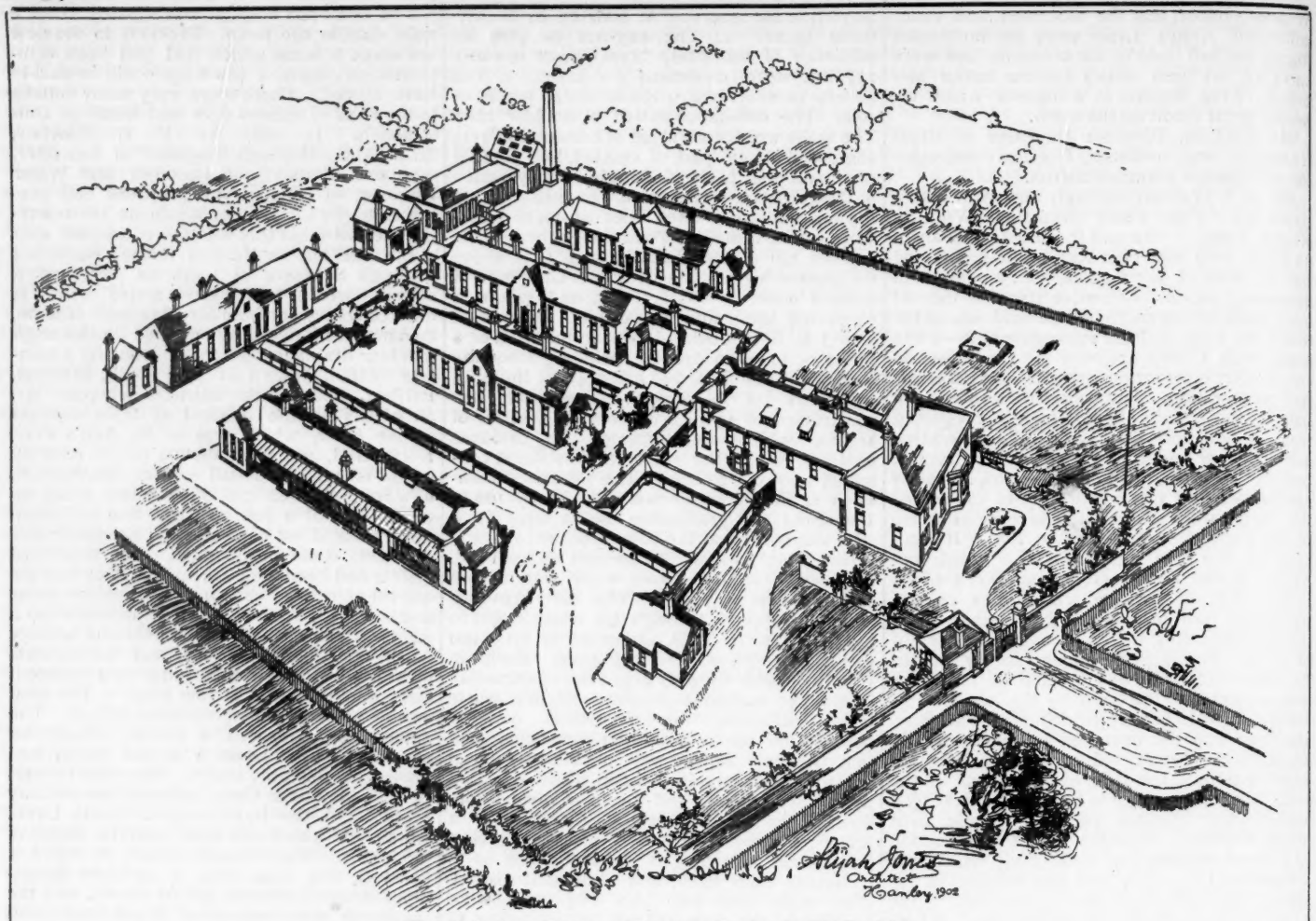
Mr. E. J. Silcock, Leeds, in moving a vote of thanks to Mr. Weaver, said the last few years had been times in Lynn during which the Corporation had had to undertake important works for the health of the town. The water scheme ought to have been carried out years before. The old supply was taken from the open stream, draining an agricultural district, and the intake of the water within the borough limits. The stream was liable to pollution at many points, and the result was that Lynn was constantly suffering from epidemics. They had two very serious epidemics of typhoid which, in the opinion of the Local Government Board, were due to the water supply. The new supply was taken from the chalk outcrop, about seven miles distant from Lynn, and was exceedingly copious in quantity, and, coming from such a source, was bound to be pure though somewhat hard. With reference to the sewerage scheme, there was in the old part of the town a great deal of artificially-made ground. So they had to have all the trenches close timbered and the greater part of the timber had to be left in. Most of the sewers were laid at a depth at which the water in the land was above the sewers when finished. The amount of subsoil leakage, however, was very small. The septic tanks, of which Mr. Collins had spoken, were called decomposing chambers, and each house had one of these chambers. It was a brick structure 4 ft. by 2 ft., and there was an outlet dipping down into the sewer. The object of this was to form a trap between the sewer and the house. It did undoubtedly form a septic tank as they had septic action going on, and, practically nothing but liquid came away from that chamber. He had seen scores opened, and undoubtedly they had a great effect in liquefying the sewage.

Mr. Collins: Were they situate in the house or outside?

Mr. Silcock: Sometimes in the house.

Mr. E. Buckham, Ipswich, seconded the vote of thanks.

The President said that the quantity of water which had been supplied was abnormal



The Infectious Diseases Hospital, Bucknall, Staffordshire.

and even now that it had been reduced to 37 gallons a day it was a very considerable consumption.

The vote of thanks having been passed,

Mr. Weaver briefly replied.

Mr. J. Pilling, Borough Electrical Engineer, presented a paper on the King's Lynn electricity works.

The members attending the meeting were then entertained to luncheon by the Mayor, and the afternoon was devoted to visits to the electricity works, the depot—where the members had an opportunity of seeing a new junction-pipe recently patented by Mr. Weaver—and the waterworks pumping station.

Illustrations.

WEST END, ST. GEORGE'S CHURCH, NEWCASTLE-ON-TYNE.

We give a general elevation of the west end of this church, and a second illustration showing the detail of the figure of St. George and the canopy. The architect of the church is Mr. T. R. Spence, the author of the paper read at the Architectural Association last week and published in our present issue; and the bronze figure was modelled by him. The glass was designed by him conjointly with Mr. T. Brown.

The stone tracery is in Caen stone, and was added after the church was built to mask the plain wall surface at the sides of the window. The font shown in the baptistry has some interest in that the bowl is of one single piece of onyx. The columns and tracery supporting it are of rouge-red marble and alabaster, and the cover in wrought iron and copper.

The subject of the large window is the Resurrection. The baptistry windows have interwoven with the ornament the various symbols of the Christian Church. The floor is in vitreous mosaic, and contains in its design those early symbols which appertain to baptism. The whole of the roof timbering is decorated in gold and colour, somewhat after the style of the Norfolk screens.

The whole church was presented to the parish by the late Mr. Charles Mitchell, of Jesmond Towers, Newcastle-on-Tyne; who was fortunate in his choice of an architect.

DESIGN FOR A GESSO DECORATED BOX.

This design for a box decorated in gesso obtained for its author, Miss Hilda Baker, of Edgbaston, a silver medal in the National Competition at South Kensington this year.

The artist has sent us no special description of her work, which however speaks for itself.

DESIGN FOR A JEWEL-BOX.

The jewel-box, for which a bronze medal was awarded to the artist, Miss E. Thorp (Huddersfield), at the National Competition this year, is an example of design worked out in cut and embossed leather. The *motif* of the design is a woodland scene. On the front two figures, one with hounds in leash are looking for the deer; on the end the hounds have been slipped and are in full cry; the back of the box shows a doe and fawn unconscious of the chase, while the other end shows a stag fleeing from the hounds. At each corner rabbits scuttle into the undergrowth, while overhead pheasants rocket out of the wood. The wood is suggested by the briar rose which gathers together on the lid into a complex harmonious design. Inside, the box is lined with Japanese block-printed silk of conventional rose design.

BUCKNALL INFECTIOUS DISEASES HOSPITAL.

The original building for the Hanley, Stoke, and Fenton Joint Infectious Diseases Hospital, at Bucknall, North Staffordshire—which was built in 1885—accommodated twenty-nine patients, comprising the south twelve-bed pavilion, west half of isolation block for five beds, iron pavilion for twelve beds (now demolished), the south-east portion of the administrative block, and the laundry block. All the other buildings shown on the plan have been erected since the year 1895, at which time Mr. Elijah Jones was appointed architect to the Board.

These new extensions comprise two twelve-bed pavilions, one eighteen bed pavilion, eastern extension to isolation block for four beds, two wings to administrative block, a discharge block, waiting-room at entrance, power station, stable block, the remodelling of laundry block, a concrete water-storage tank, overhauling and renovating the whole of the drainage. The latest extensions were formally opened on February 6, and consist of eighteen-bed pavilion, western wing to administrative block, power station, stable block, and the remodelling of laundry block.

The whole of the fittings of every description are of the very latest type and principle, the laundry being fitted with steam-driven machinery by Messrs. Summerscales, of Keighley, together with drying-horses and hot-air drying-room. The disinfector is Messrs. Manlove & Alliott's patent oval form. The whole of the buildings are lighted by electricity, generated by the complete plant in the power station, and overhead telephones from all buildings to the administrative block. When the covered ways are completed, the institution will in every way be a modern one. These covered ways are rendered a necessity by the bleakness of the site, and are disconnected at each building containing infection.

The whole of the exteriors of the buildings are quite plain, in common brickwork, with red pressed-brick dressings to the openings and angles, the roofs being covered with red pressed tiles. The interiors have glazed tile and brick dadoes; maple and pitch-pine floors, polished cement plaster, with Keen's cement finish, pointed to walls (where not tiled) and ceilings. The whole of the walls in the new eighteen-bed pavilion are covered from floor to ceiling with glazed tiles in selected tints. The heating is by means of hot-air down-draught stoves, in bronze-green faïence, with 3-in. orange-coloured tiles to form hearths, and green faïence kerbs. The lavatories, sinks, and baths are of firelay, with white porcelain finish.

The ventilation is by means of Boyle's inlets and extractors to walls and grids in ceilings connected to ridge ventilators. The hot-water supply to baths, &c., is by means of a self-contained boiler in each annexe, which is also used for heating the several places in each annexe by means of wrought-iron piping round each.

The total number of beds is now sixty-three, and the land has as many buildings on it as it will conveniently allow.

The whole of the pavilion erections and alterations, comprising forty-six out of the sixty-three beds, and other blocks, as mentioned, erected since 1895, have been carried out under the directions and supervision of Mr. Elijah Jones, architect, of Hanley. Messrs. Embrey & Co., Fenton, were general

contractors. The tiling was executed by the Marsden Tile Co., Burslem; the Terrazzo paving by Messrs. Diespeker; baths, water-closets, slopsinks, and sanitary fittings and lavatories by Messrs. Howsar & Sons, Hanley; stoves and grates by Messrs. Shorland, Manchester; roof ventilators and inlets by Messrs. Boyle & Sons; ventilators behind beds by Messrs. Ellison; locks by Messrs. Lockerbie & Wilkinson, Birmingham; furniture by Mr. E. Malkin, Hanley; bedsteads and ironmongery by Messrs. Holdgate & Small, Stoke; drapery by Mr. E. Elliot, Fenton; crockery by Mr. Hastings, Hanley; boiler, engine, dynamos, and electric plant by Messrs. Blackburn, Starling & Co., Nottingham and Hanley; grates and chimneypieces by Mr. J. Collings, Hanley; wrought-iron dog-grate by Mr. W. Durose, Tunstall.

THE PREVENTION OF SMOKE.*

I HAVE not hesitated to bring this subject before the Association, for no one will deny that though

"Coal has made England,
Smoke has marred it."

No one who has not travelled knows how to appraise the natural beauty of England nor the artistic ugliness of her manufacturing towns. In such towns smoke spoils everything, and were it not for the natural antagonism of the Englishwoman to Satan and all his works, we should soon be lost in dirt. If the Metropolitan Railway were managed by women they would scour it or die, they would not consent to live in such an environment of filth. Happily we have hope that the modern Hercules will soon clear out this Augean stable and substitute sweetness and light for dirt and darkness.

At one time I harbcured a great hope that electricity would cure the smoke evil or at least take it right away outside our towns, but that was before the days of the municipal craze, and I did not foresee that corporations would necessarily plant their works within their own area and thereby increase the density of the pall that reduces summer to a mere warm variety of winter and makes winter more miserable than a place we have read of but not seen. I have endeavoured, in co-operation with my friends, to mitigate the smoke nuisance by promoting electric power bills whereby the undertakers would be, and in some cases are, authorised to generate electrical energy in the country, and supply it in bulk to municipalities. It is common knowledge, however, that these bills were opposed with the greatest possible vigour (not to say acrimony) by the municipalities. It became obvious, therefore, that our local rulers have made up their minds that we shall still continue to live amongst chimneys. Therefore, as we cannot convert our rulers, the only way of salvation is to convert the chimneys.

To come to the point: I think I have found a cure for smoking chimneys; or, to be more precise, I have found a man who knows the inventor of a new process for this purpose, viz., the Wilson Smokeless Process. It did not take me long to get an introduction to the process itself, which I discovered consisted in squirting a mixture of air and nitrate of soda solution on the fire. I fitted up a Babcock boiler at Kidderminster, and gave the system a trial. The original installation was both crude and expensive, but it cured the smoke. It had plenty to cure, for the coal in that district is both soft and dirty, consequently the numerous chimney-tops emit dense clouds of smoke. The action of the solution of nitrate of soda appears to be somewhat obscure—my theory is that it creates nuclei of intense heat, which fire the gases and enable the injected air to combine with them.

I have had experience with nearly all known methods of smoke prevention. Many of them are good, but usually a good stoker can give equally good results without them; the defect of both of them and the good stoker is that they diminish the output of the boiler and its thermal efficiency, owing to the fact that they let into the furnace a larger amount of air than is necessary for perfect combustion. My first desire, therefore, after the success of the Wilson process in preventing smoke had been demonstrated, was to ascertain how it affected the output of the boiler and its evaporative efficiency. For this purpose I instructed Mr. H. Wall Wilkinson, Ass.M.Inst.C.E., to conduct a series of tests to ascertain:—

(*a*) The output and efficiency under existing conditions;
(*b*) The output and efficiency under existing conditions with air blast only;
(*c*) The output and efficiency under existing conditions with the complete Wilson process.

The results are given in the appended report, from which it will be seen that, assuming existing conditions as 100,

(*a*) Equals 100 plain furnace;
(*b*) Equals 108 air injected;
(*c*) Equals 122 Wilson Process.

It is necessary to state that Mr. Wilkinson was entirely sceptical as to the value of the process, and made numerous other tests to satisfy himself that the results obtained were correct. The engineer of the power house was equally sceptical, but when he found that the coal bill was actually reduced he asked to have all his boilers fitted with the process, which was done. Other instances of the successful application of the process have come under my notice—one at Durham, where the chimney of the power station in the valley disgorged smoke under the windows of houses on the hillside; and another at Windermere, where the Electric Lighting Co. was subjected to proceedings in Chancery for nuisance. In this case the smoke was smoke in name only—there was no black smoke; but the process removed the last vestige, and the Chancery suit has been withdrawn.

The Wilson Smokeless Process is extremely simple. It consists in the injection of a very minute quantity of nitrate of soda in solution into the furnace in combination with sufficient air to produce perfect combustion of the gases. The cost of the nitrate of soda used is from 3d. to 4d. per ton of coal burnt. The system has been installed at the works of Messrs. Gallaher, Belfast. The owners have graciously expressed their desire that all members of the Association interested in the subject should personally inspect the operation of the process.*

The following is the Report on the working of the process, by Mr. H. Wall Wilkinson, A.M.Inst.C.E.:—

"March 15, 1902.

I visited the works of the Electric Traction Company at Kidderminster on May 22, 1901, for the purpose of making a series of tests on the Wilson Smoke Consuming Process, the apparatus having been fixed to one of the boilers at those works. The boiler is a Babcock & Wilcox water-tube boiler, having 27 sq. ft. of grate area, 1,218 sq. ft. of water-heating surface, and 142 sq. ft. of steam superheating surface. It is fitted with the so-called Scotch furnace, and works at a pressure of 120 lbs. per square inch. It was fitted with Meldrum's forced draught apparatus, but this was not used during the tests. The feed water was passed through a Greens' economiser on its way to the boiler. The tests were made on the boiler while performing the ordinary work supplying steam to the traction engines, and the load varied, therefore, from time to time, and was not the same on all the four days over which the tests continued.

The process consists in forcing jets of air over the surface of the fire, the air carrying with it in the form of spray a solution of the 'chemical' supplied by the inventor. The air is introduced through cast-iron blocks built into the furnace walls at the four corners, the 'chemical' being sprayed in at the two front corners only. Steam jets were used for inducing the supply of air to the blocks. The 'chemical' was made into a strong solution and supplied by pipes from an overhead tank. The coal was 'thick slack' from the Hawkins Colliery, Cannock.

On the first day I confined myself entirely to observations of the top of the chimney-stack, carefully noting the difference in the amount and quality of smoke after each firing, both with and without the 'process.' When working under the usual conditions a good deal of dark brown smoke was visible, lasting for about two minutes after each firing. I may here mention that the firing on the 'spread' system was well and carefully done, about three to four shovelfuls being put on about every four minutes. With the process in full operation a very slight coloured haze was produced, which lasted about fifteen seconds after each firing. With the air jets in operation, but with the 'chemical' cut off, there was a very light brown smoke lasting for about thirty to forty seconds.

On the second and following days I made a series of evaporative tests both with and without the process, and also a test with air jets only, without the 'chemical.' The results of these tests are appended hereto:—

SUMMARY OF RESULTS OF EVAPORATION TEST ON BOILER AT KIDDERMINSTER FITTED WITH THE WILSON APPARATUS.

May, 1901.

—	May 23 (with air chemical).	May 24 (with air only).	May 25 (ordinary conditions).	May 30 (with air and chemical).
Duration of test	7·08 hrs.	7 hrs.	7·42 hrs.	7 hrs.
Average pressure of steam	113·3 lbs.	115 lbs.	117·7 lbs.	115·3 lbs.
Average temperature of steam (superheated)	469° F.	473° F.	459° F.	466° F.
Average temperature of steam feed	143° F.	140° F.	146° F.	150° F.
Factor of evaporation	1·228	1·235	1·22	1·219
Total coal	2,856 lbs.	3,416 lbs.	3,248 lbs.	2,744 lbs.
" per hour	403 "	488 "	438 "	392 "
" " per sq. ft. of grate	15 "	18 "	16·2 "	14·5 "
Total water	19,520 "	19,485 "	17,680 "	17,886 "
" per hour	2,755 "	2,784 "	2,334 "	2,555 "
Water evaporation per lb. of coal (actual conditions)	6·83	5·7	5·32	6·52
Water evaporation per lb. of coal from and at 212 deg. F.	8·38	7·01	6·5	7·95

NOTE.—An intermittent leak from relief valve of economiser was discovered after the first test was started. It was therefore repeated on May 30. H. W. W.

After the test on the first day had commenced, an intermittent leak from the relief value of the economiser was discovered, so this test was repeated again on May 30. Every care was used to get as accurate results as possible. The coal was weighed in boxes of 56 lbs. each. The contents of five of these were emptied on the floor at one time, and no more was weighed out till this was all used, the time being noted. The feed water was measured in two barrels which had been carefully calibrated, and which were emptied alternately into the tank from which the feed pump drew. The fire was cleaned about one hour before commencing the test, and then burnt low. It was cleaned again in three hours after the test was started, and again about one hour before it ended. At the end of the test the fire was burnt low again so as to bring it to the same condition as at the beginning. The firing was done by the regular stoker employed by the traction company. All tests lasted over seven hours."

* A paper read at the Belfast meeting of the British Association on September 16 by Mr. J. S. Raworth, M.Inst.C.E.

* The rights for the United Kingdom are controlled by the Wilson Smokeless Process, Ltd., 1, Arundel-street, Strand, London, W.C.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend St. George-in-the-East Guardians 3,000*l.* for receiving homes for children; and Southwark Guardians 1,900*l.* for a receiving home for children.

Site for New Offices.—The debate was resumed on the Report of the Special Committee on new offices recommending the Council to apply to Parliament for power to acquire compulsorily for the purposes of new offices the properties bounded on the north by William-street, the Tivoli Music-hall, and Adam-street, on the south by the Embankment-gardens, on the east by the Hotel Cecil, and on the west by York-buildings. The estimated cost of the site, which includes an area of 3·35 acres, is 900,000*l.**

Mr. Beachcroft moved the following amendment:—"That, in view of the costly undertakings now being carried out or about to be carried out by the Council, the Council deems it inexpedient to incur so large an additional expenditure as would be involved by the adoption of the scheme proposed by the Committee; and that the recommendation be accordingly referred back with an instruction to the Committee to report (*a*) at what cost certain property in Spring-gardens, belonging to the Government and reported to be available, could be immediately acquired; (*b*) to what extent such property could be utilised for the erection thereon of offices to accommodate the staff now housed in outside premises, and in such a way as to be hereafter available for an extension of the present premises; and (*c*) the cost of such building."

Mr. A. T. Williams seconded the amendment.

In the course of a long debate, Mr. W. Emden appealed to the Council to treat the matter on a business basis. At present they had the staff housed in forty different buildings, which was most uneconomical. From his experience he did not think the building would cost more than half a million of money. They had to consider they were paying 18,560*l.* a year in rent, and they had paid 150,000*l.* for leases. When those leases ran out they would have to pay more, because the value of the property would have increased. If they realised their present leases and deducted that from the cost of the new scheme, he did not believe the difference would amount to more than 400,000*l.* or 500,000*l.*

Colonel Rotton, while in favour of housing the staff under one roof, said this could not be done on the Adelphi site. He felt that the whole of the Historical Records and Buildings Committee must vote against the idea of pulling down the houses on the Adelphi site.

Mr. Fletcher, the Chairman of the Special Committee, said the buildings would be constructed in the "Adam style of architecture—in the style that Robert Adam would have approved of."

The amendment having been defeated,

Mr. Cohen moved:—"That, before coming to a decision on the Adelphi site, the committee be instructed to report on the advantages of a site south of the Thames, adjacent to Westminster Bridge." He condemned the Adelphi site on the score of unsuitability, while it was impossible to house all their staff on it. It was possible, he believed, to acquire a site between Westminster Bridge-road and the Works depot for about 650,000*l.*, and this would give them 5·4 acres, compared with the Adelphi site of 3·35 acres, costing 900,000*l.* If they constructed a road from Westminster Bridge to Waterloo Station the recoupment would go a measurable distance towards the cost of the building. There had been a few remarkable architects who had made their mark on London, but no man had made so distinctive a mark upon the buildings he erected than Robert Adam, and perhaps his brother. And one of the great merits of their work, which enabled any one to recognise it the moment it was seen, was the beauty of the proportions of the buildings they erected, and the idea of building some eight story monstrosity in place of this work was hardly worthy of the Council, especially bearing in mind what Lord Rosebery had recently said at the meeting of the Topographical Society.

* See our last issue for details of the scheme, p. 345.

The amendment was defeated, and

Mr. Gaskell moved, and Mr. Sankey seconded, a further amendment to add the following words to the recommendation, viz.:—"And that the Council be empowered to hold over the development of the site until such time, not exceeding ten years, as it may determine." This was rejected by a large majority.

A division was taken on the recommendation, with the following result:—

For the recommendation.....	50
Against.....	50

The Chairman said that Mr. Beachcroft's name had been given him as a teller, but being informed that Mr. Beachcroft had left the room he ordered Mr. Cousins to tell in his place. Mr. Cousins went out to tell and found Mr. Beachcroft there, but Mr. Cousins did not vote. The difficulty was that there was a tie, and the motion was not carried.

Mr. Cousins claimed the right to vote against the recommendation.

After some discussion the Chairman said he must accept the division list as handed to him, but a note could be added in the minutes recording the fact that Mr. Cousins tendered his vote, and it was not accepted.

Erection of Warehouse Buildings on West Side of Eyre-street Hill, Hatton-garden, Holborn.—The Building Act Committee reported as follows, the recommendation being agreed to:—

"The District Surveyor having received notice from Messrs. Patman & Fotheringham of their intention to erect two factory buildings on the west side of Eyre-street Hill, Hatton-garden, within the prescribed distance from the centre of the roadway, and to a greater height than the buildings formerly existing on the site, served a notice of objection upon them under Section 150 of the London Building Act, 1894. The street in question is about 20 ft. to 22 ft. in width; the buildings formerly on the site were six domestic buildings about 28 ft. in height, and the buildings which are being erected are factory buildings of the 'warehouse' class under the Act, and about 50 ft. in height. Under Section 13, Sub-Section 5 of the Act, if a person has obtained certified plans of any building or structure existing within the prescribed distance either at the commencement of the Act or at any time within seven years previously, he may alter or re-erect such building or structure, but so that no land within the prescribed distance is occupied by the re-erected building or structure except that which was occupied within the prescribed distance by the building previously existing. The builders in this case had obtained certified plans from the District Surveyor of the six domestic buildings formerly existing on the site, and they contended that they were legally entitled to build as they proposed, and stated that they should not therefore appeal against the District Surveyor's notice of objection, but should proceed with the erection of their buildings. We are of opinion that the erection of buildings of a totally different character from those formerly existing on the site cannot be said to be an alteration or re-erection of such buildings, and we therefore instructed the solicitor to serve a penal notice on the builders. The notice was not complied with, and two summonses (one in respect of each building) were issued against the builders. The case was heard at the Clerkenwell Police-court before Mr. Bros on July 18, 1902. The facts were not disputed, and after hearing the arguments of counsel on both sides the magistrate dismissed the summons with 5*l.* 5s. costs, but agreed to state a case for the opinion of the High Court. As the point raised is a very important one, we instructed the solicitor to get a special case stated, and the form in which it should be stated has been practically agreed upon, and will no doubt be signed by the magistrate. We recommend:—That the solicitor be instructed to take all necessary steps for obtaining the decision of the High Court upon the case stated by the magistrate in the matter of the Council *v.* Patman & Fotheringham (erection of factory buildings on the west side of Eyre-street Hill, Hatton-garden)."

Tramways: Electric Sub-station.—The Highways Committee recommended and it was agreed:—

"That the expenditure on capital account be authorised (*a*) of a sum not exceeding 3,600*l.* for the erection of workshop buildings, adjoining the sub-station in course of erection at Clapham for the electrical working of the London County Council tramways, and (*b*) of a sum not exceeding 350*l.* in remuneration of the quantity surveyor employed for getting out the quantities and measuring up the work in connexion with the erection of the sub-station and workshops at Clapham, and of the sub-stations at Brixton and near the Elephant and Castle respectively."

Housing: Reid's Brewery Estate.—The Housing of the Working Classes Committee reported that block D, Reid's brewery estate, has been completed and is now ready for occupation. This block of dwellings is one of the six interior blocks on the estate; it has been built by the Works department, and will accommodate 250 persons in fifteen tenements of three rooms, and forty tenements of two rooms.

Buildings at Farmfield.—The Inebriate Acts Committee reported that the works included in Messrs. Potter Brothers' contract for the erection of new buildings at Farmfield have been completed, and that the certificate of the Secretary of State in respect of the buildings has been received. The certificate allows of the reception of eighty additional patients, so that there is at present accommodation for 113 female inebriates at Farmfield Reformatory.

View from Richmond Hill.—In answer to a question by Mr. Sankey, Mr. Piggott said it was a fact that Buccleuch House, Richmond, the residence of Sir Whittaker Ellis, was for sale, and if the site were built upon it would destroy the view from Richmond Hill. Sir Whittaker Ellis, however, was under a covenant not to build. On the opposite side of the river was Cambridge Terrace-gardens, and Sir Whittaker Ellis promised, when the Marble Hill Estate was being acquired, that these Gardens should not be further built upon. That estate was offered for sale, and it was the intention of the Committee to write to Sir Whittaker Ellis, drawing his attention to his promise, because there was no condition in the sale carrying out that promise.

Proposed New Institute for Paddington and North-West London.—The Technical Education Board reported as follows:—

"We have for some time been endeavouring to arrange for additional accommodation and improved organisation of technical education in the extensive district of Paddington (including Queen's Park), Kilburn, and South-West Hampstead, in which a large artisan population has grown up. The Council at present aids very liberally the classes carried on at the Westbourne Park Institute and the Queen's Park Institute, together with some small art classes which have practically no independent resources, and all of which urgently require better accommodation. These is no polytechnic nearer than those at Regent-street (Oxford-circus) and Manresa-road (Chelsea), which are far too distant to meet the local needs.

We have now succeeded in finding premises which, with comparatively little alteration, will enable us to concentrate the present classes into one strong institution, providing adequate laboratory and workshop accommodation, and in a position to serve as the educational centre for the whole district. These premises are in Saltram-crescent, lying between Queen's Park and Westbourne Park. The buildings are freehold, standing on a site of about 35,000 sq. ft., and were erected about twelve years ago for use as a higher grade voluntary school. The proposed organisation of the school did not meet the approval of the Education Department, and the project was eventually abandoned. They have been inspected by the architect and valuer, and it is estimated that an expenditure of 2,000*l.* would fit them for use as a technical institute by October next. The valuer has been in negotiation with the owners, and has, with our approval, secured the option of purchase of the freehold, with possession, for the sum of 15,000*l.*, which we consider a very reasonable price. . . . We recommend 'That the freehold of the premises in Saltram-crescent be acquired for 15,000*l.*; that the cost be provided from the funds already appropriated by the Council for technical education; that the solicitor do complete the matter, and that the seal of the Council be affixed to any necessary documents in connexion with the purchase of the property.'"

Lord Chamberlain's Theatres.—The Theatres and Music Halls Committee reported that they had noticed statements in the Press concerning the Council's action in respect of the theatres under the jurisdiction of the Lord Chamberlain. The public might be assured that no action of the Council sought either to put obstacles in the way of the managers, or to allow a state of things which would endanger the safety of theatre-goers. To meet the wishes of the Lord Chamberlain, the theatres were inspected, and a report was forwarded to him before the day fixed for the renewal of the licences. Full licences were then granted by his Lordship to all theatres which had complied with all the requisitions, and provisional licences for three months were granted to others, to be exchanged for full licences on completion of the work.

Theatres.—The Theatres and Music Halls Committee reported that the following had been approved:—Canterbury Music Hall—rendering lounge floor fire-resisting—submitted by Messrs. Wylson & Long; Grand Palace of Varieties, Clapham—new lobbies—submitted by Mr. F. Matcham Shepherd's

Bush Empire—building to accommodate 2,500 people—submitted by Mr. F. Matcham.

Repainting Chelsea Bridge.—The Bridges Committee reported as follows:—

"On July 22, 1902, the Council authorised an expenditure of 2,495*l.* for repainting Chelsea Bridge, and instructed us to invite tenders for the work and to accept the lowest satisfactory tender. The following tenders were accordingly opened on August 18:—

T. Quartermaine	£1,112	5	7
A. H. Inns	1,717	0	0
W. Dudley	1,952	13	9
E. Proctor	2,325	3	6
Vigor & Co.	2,489	0	0

Inasmuch as there was a difference of over 600*l.* between Mr. Quartermaine's tender and the next lowest, and further that he was a provincial contractor who had not previously done work for the Council, we were careful to have full inquiries made respecting his capability to properly carry out the contract. It was not, therefore, possible until September 13 to send the usual letter of acceptance, the engrossment of the contract being sent for execution some three days later. On September 19 Mr. Quartermaine wrote to the effect that since tendering he had undertaken other works, and that, owing to the delay in communicating to him the decision of the Council, he had found it impossible to execute the work. We have had, therefore, to further consider the matter, with the result that we now deem it desirable that the carrying out of the work should be postponed until the spring of next year."

The Council adjourned shortly before 7 o'clock.

METROPOLITAN ASYLUMS BOARD.

THE monthly meeting of this Board was held on Saturday, Mr. Hensley presiding.

The Works Committee reported that they had authorised acceptance of the contract of Messrs. Duke & Ockenden, of Littlehampton (as sub-contractors), for the supply and fixing of a gas engine and pump with a lifting capacity of 2,000 gallons per hour, at the Millfield Homes, at the sum of 243*l.* 10s., and also for the supply and fixing of the external cast-iron connecting pipe from the well to the water tower with the necessary fittings, fire hydrants, and service boxes at the additional sum of 68*l.* 10s. The necessity for this work arises from the desire to obtain the water supply from a well instead of from the local water company as originally contemplated.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Marylebone, East.†—Enclosures to the entrance portico at No. 21, Portland-place, St. Marylebone (Messrs Ray & Murrells for Sir A. Edmonstone, Bart.).—Consent.

Hackney, Central.†—Blocks of dwellings on the south side of Dalston-lane and east side of Navarino-road, Dalston (Messrs. N. S. Joseph, Son, & Smithem for the Four per Cent. Industrial Dwellings Co., Ltd.).—Consent.

Lewisham.—Three buildings on the south side of Ravensbourne-road, Lewisham, eastward of Montem-road (Mr. J. W. Webb).—Consent.

Rotherhithe.—Projecting oriel windows at the first, second and third floor levels, and of projecting iron balconies at the first floor level, in front of a proposed block of offices upon the site of Nos. 17 to 25 (odd numbers) inclusive, Tooley-street, Rotherhithe (Mr. C. S. Peach for Messrs. Mills & Sparrow).—Consent.

Strand.†—Projecting oriel windows to a building on the site of Nos. 1, 3 and 5, Ryder-street, St. James's (Mr. W. Woodward for Mr. C. Guffanti).—Consent.

Marylebone, West.—Two blocks of residential flats on the north side of Marylebone-road and west side of Lisson Grove, St. Marylebone, of projecting bay and oriel windows, porches and balconies (Messrs. Gordon & Gunton for Mr. T. H. Brooke-Hitching).—Consent.

Clapham.—A projecting porch in front of No. 1A, Rectory-grove, Clapham (Mr. S. J. Collins, for Mrs. R. Virgo).—Consent.

Greenwich.—Wood and tiled porches in front of five dwelling-houses on the north side of Shooter's Hill-road, Greenwich (Mr. D. Wilson).—Consent.

Hammersmith.—Extension of the periods within which the erection of a block of flats, with shops on the ground floor, on the site of Nos. 156 and 158, Uxbridge-road, Hammersmith, was required to be commenced and completed (Mr. A. H. Hart).—Agreed.

Hampstead.—Retention of a shop front erected under the projecting landing at No. 150, Finchley-road, Hampstead (Messrs. C. Saunders & Son for Mr. H. J. S. Abrams).—Consent.

Lewisham.—A porch addition at the rear of No. 179, Hither-green-lane, Lewisham, to abut upon Ennersdale-road (Messrs. J. Outhwaite & Son for Mr. J. Outhwaite).—Consent.

St. Pancras, South.†—A building on a site abutting upon Euston-road, Southampton-street, and Warren-street, St. Pancras (Mr. E. C. Macpherson for Mr. H. Regnart).—Refused.

Clapham.†—A church on the site of Nos. 26, 28, and 30, Larkhall-lane, Clapham (Mr. W. Romain for the Rev. Canon St. John).—Refused.

Hackney, Central.—A one-story addition upon part of the forecourt of the Star Steam Laundry, Anton-street, Hackney (Mr. J. Hamilton for the Star Steam Laundry Co., Ltd.).—Refused.

Kensington, South.—An iron and glass covered way in front of No. 26, Kensington-court, Kensington (Messrs. Green & Abbott for Mrs. McConnell) —Refused.

Marylebone West.—A covered way at the side of No. 20, Upper Hamilton-terrace, Maida Vale, St. Marylebone, abutting upon Carlton Hill (Mr. G. A. Sexton for Mr. J. Peters).—Refused.

Marylebone West.—A porch on the north side of No. 33, Montagu-square, abutting upon Montagu-place (Mr. F. W. Foster).—Refused.

Norwood.—One-story shops on the east side of Norwood-road, Lambeth, between No. 333 and Norfolk Lodge (Mr. C. M. Quilter for Mrs. F. Parker).—Refused.

St. George, Hanover-square.—A porch at the entrance to No. 16, Queen-street, Mayfair, St. George, Hanover-square (Messrs. Rolfe & Matthews for Mr. W. Stone).—Refused.

Width of Way.

Kensington, North.—Extension of the period within which the rebuilding of a chapel, on the western side of Bosworth-road, Kensington, with the external walls of the new building at less than the prescribed distance from the centre of the roadway of Stockton-mews, was required to be commenced (Mr. J. W. Chapman).—Consent.

Limehouse.—Retention of a detached water-closet building in a yard on the west side of Gill-street, Stepney, next the Great Eastern Railway arch (Mr. M. W. Jameson for the Metropolitan Borough of Stepney).—Consent.

St. George-in-the-East.—School buildings on the north side of High-street, Wapping (Mr. T. J. Bailey for the School Board for London).—Consent.

Bethnal Green, South-West.—A building commenced to be erected on the south side of Princes-court, Bethnal Green (Mr. G. H. Lovegrove).—Refused.

Hampstead.—Four three-story houses on the north side of Willow-road, Hampstead (Mr. F. S. Hammond for Mr. W. Selley).—Refused.

Width of Way and Line of Fronts.

Dulwich.—An extension of the period within which the erection of buildings, with shops on the ground floor, on the west side of Grove-lane, Camberwell, at the corner of Champion-grove, was required to be commenced (Mr. J. Heath for Mr. T. Freeman).—Consent.

Space at Rear.

Wandsworth.—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on the west side of Nepean-street, southward of Umbria-street, Wandsworth (Mr. A. J. Hardwick for Mr. T. D. McMeekin).—Consent.

Westminster.—A deviation from the plan approved on March 25, 1902, for the erection of a block of artisans' dwellings on the south side of Page-street, Westminster, next No. 125 (Messrs. N. S. Joseph, Son, & Smithem for the Council of the City of Westminster).—Consent.

Formation of Streets, &c.

Hackney, South.—That an order be issued to Messrs. Hodson & Whitehead sanctioning the formation or laying out of a new street for carriage traffic to lead from Morning-lane to Chatham-place, Hackney, and, in connexion therewith, the widening of a portion of Morning-lane (Mr. H. W. Rowlandson).—Consent.

Width of Way and Cubical Extent.

Southwark, West.—A building, to be used as a printing and bookbinding factory, on the east side of Bear-gardens and west side of Rose-alley, Southwark, with the external walls at less than the prescribed distance from the respective centres of the roadways of those streets, and such building to exceed in extent 250,000, but not 450,000, cubic feet (Mr. E. D. Hoyland for Messrs. E. Newman & Sons).—Consent.

Buildings for the Supply of Electricity.

Marylebone, East.—A building to contain a water softening plant at Grove-road, St. John's Wood, abutting upon Lodge-place (Mr. C. S. Peach for the Central Electric Supply Co., Ltd.).—Consent.

Means of Escape at Top of High Buildings, Section 63.

Marylebone, West.—Means of escape in case of fire proposed to be provided in pursuance of Section 63 of the Act on the sixth story of two blocks of residential flats on the north side of Marylebone-road and west side of Lisson-grove, St. Marylebone, for the persons dwelling or employed therein (Messrs. Gordon & Gunton for Mr. T. H. Brooke-Hitching).—Consent.

St. George, Hanover-square.—An alteration in the means of escape in case of fire, provided in pursuance of Section 63 of the Act, on the fifth and sixth floors of a building known as Hanover-buildings, Hanover-square, St. George, Hanover-square, so far as relates to an alteration of the lower flight of the north-western external staircase (Mr. J. Sawyer).—Consent.

Working-Class Dwellings.

Hackney, Central.—Blocks of intended dwelling-houses, to be inhabited by persons of the working-class, and proposed to be erected, not abutting upon a street, on a site at the corner of Dalston-lane and Navarino-road, Dalston (Messrs. N. S. Joseph, Son, & Smithern for the Four per Cent. Industrial Dwellings Co.).—Consent.

Dwelling Houses on Low-Lying Land.

Lambeth, North.—Two buildings on low-lying land situated at the corner of Short-street and Newcut, Lambeth (Mr. W. R. Milton for Mr. T. L. Green).—Consent.

*** *The recommendations marked † are contrary to the views of the Local Authorities.*

Correspondence.

POLLUTION OF THE RIVER LEA.

SIR,—I am glad to see in your issue for the 18th inst. that you draw attention on p. 339 to this subject.

It has always been a mystery to me how the filthy state of the old bed of the River Lea from the East London Water Works Filter Beds down to Old Ford Lock, about three miles, can possibly be tolerated by the authorities. This is the old bed of the river, the part for traffic being diverted to a new channel called the Hackney Cut, and is the highest part of the river reached by the tides. It is little better than a sewage pond and a nuisance to the whole neighbourhood. This is the more remarkable considering the number of authorities that might be supposed to have an interest in putting a stop to the nuisance; it partly forms the boundary between Low Leyton, Stratford, and Hackney and Poplar, so that the Sanitary Authorities on both sides must be interested. It skirts for more than a mile Hackney Marshes, lately turned by the London County Council into a public park and health resort, so that the Committee of Parks and Open Spaces might have something to say. The Lea Conservancy Board are, of course, directly interested, and as each ebbing tide takes a portion of its sewage down the lower part of the Lea into the River Thames to assist in the pollution of that river, the Thames Conservancy might have something to say. The reservoirs and filter beds of the East London Water Co. cannot be improved by the polluted air in their immediate locality. Moreover, as the main outfall sewer runs over the very place where this sewage pond discharges into the navigable part of the Lea, with a pumping station close by, the question arises, Why does not this sewer take this sewage? The whole thing seems to be a striking illustration of the well-known proverb that "What is everybody's business is nobody's business." This neglected neighbourhood is not without historic interest. The place of discharge above mentioned, "the Old Ford," was the main thoroughfare out of London to the north-east from the time of the Romans, as is attested by the names "Old Ford-road" and "Roman-road," and the White Hart public-house at this corner stands on the site of one that has been there for centuries, and Roman remains were found here in 1868 on the site of the Old Ford goods station. There was also an old palace in the neighbourhood, attested to by the names Palace House and Palace Gate, remains of the old gateway being still there.

The polluted part of the river is crossed by the North-Western and Great Eastern Junction Railway; by Carpenters-road, which leads direct from this part of London to Stratford; and by Temple Mills-road, forming the junction between Homerton and Lower Leyton by Temple Mills Bridge; and by this bridge is the other White Hart public-house mentioned by Dr. Warry in his report, which has just been rebuilt on the site of one which bore the date 1514. The neighbourhood is also increasing in population, and a new road has just been passed by the London County Council—Waterden-road—which connects the two thoroughfares above named, and runs very near the polluted stream.

DISTRICT SURVEYOR.

ASWAN DAM LOCK GATES.

SIR,—In a recent notice on the Aswân dam you state that Mr. Stokes designed the gates; as a matter of fact Mr. F. D. M. Stoney designed the gates, the regulating gates, and the lock gates. Mr. Stoney worked at the dam gates from 1893 to 1895, and I spent February, 1895, in England paying

visits to Ipswich and seeing that the iron work was in accord with the stonework. The lock and regulating gates as erected are as they were designed by Mr. Stoney. Doubtless, Mr. Stokes has had much work in fitting in details to suit modifications as the construction has advanced, but the designs are Mr. Stoney's. The only thing Mr. Stoney did not design, at least, not in my time, was the lift bridge. We hoped later on to design a lift bridge between dwarf pylons, but *Dis aliter visum.*

W. Willcocks,
Late Director-General of Reservoirs.

Cairo, October 11, 1902.

HOW TO SET OUT AN ELLIPTIC ARCH.

Sir,—The contribution of your correspondent, "W. P." (p. 325 *ante*), is very amusing, but as an exposition of ignorance it would be hard to beat.

He says that the method described by him—which, by the way, is but a variation of that given by "Knox & Wells"—is that in most common use among carpenters and masons.

Granted; and it would be strange, indeed, if this were not the case, for all modern teachers of "Practical Geometry" define the ellipse in a sentence which forms the basis of this construction, and, after all, the methods which the average mechanic employs are easily traceable to his early training.

No geometrician can demonstrate that the curves obtained by the method "W. P." employs are not ellipses, for they are *absolutely correct*, this notwithstanding "W. P.'s" readiness to grant the impossible.

But your correspondent is wrong when he says "the two ellipses are equidistant from one another throughout their length," and if by his assertion that "a continuation from Q of rod QP will give radiating joints at any point in the circumference" he means "will give correct radiating joints for the voussoirs" he is again incorrect. T. L. B.

BOOKS RECEIVED.

Thirty-first Annual Report of the Local Government Board: 1901-1902. (Eyre & Spottiswoode.)

The Private Street Works Act. By Joshua Scholefield and Gerard R. Hill. (Butterworth & Co.)

The Painters' Laboratory Guide.—By G. H. Hurst, F.C.S. (Chas. Griffin & Co.)

The Modern Carpenter, Joiner, and Cabinet Maker. By G. L. Sutcliffe. Vol II. (The Gresham Publishing Co.)

The Student's Column.

THE CHEMISTRY OF BUILDING MATERIALS.

17.—Glass.

Composition.—Glass consists of a combination of silicates, the predominating constituent being usually silica. Silicates of the alkalies are soluble in water, and silicates of the alkaline earths are soluble in acids, although insoluble in water; but double silicates of an alkali and an alkaline earth are practically insoluble either in water or common acids, although hydrofluoric acid decomposes them. Silicate of soda, which is sometimes called *water-glass*, is one of the silicates soluble in water, and is frequently a constituent of preservative and fireproofing solutions.

In ordinary window-glass the alkali is soda, and the alkaline earth is lime; and the composition of the double silicate which constitutes window-glass approximates more or less closely to the formula $Na_2O.CaO.6SiO_2$. In the manufacture of flint glass oxide of lead is employed instead of lime, and in some forms of glass potash is used in place of soda. Most forms of glass contain small quantities of alumina and iron, these being present in most cases as accidental impurities.

The varieties of glass which have from time to time been manufactured are innumerable, but the glasses most largely manufactured at the present time may conveniently be divided into the following four classes:—

1. *Crown, sheet, and plate glass*, which consist of silicates of sodium and calcium.
2. *Flint, crystal, or lead glass*, which consists of silicates of potassium and lead.
3. *Common green bottle glass*, which consists of silicates of sodium, calcium, aluminium, and iron.
4. *Bohemian glass*, which consists of silicates of potassium and calcium.

The following table shows the approximate compositions of some common commercial glasses, but the compositions of such glasses are, of course, variable:—

Description of Glass.	Approximate Composition.						
	SiO_2	K_2O	Na_2O	CaO	*PbO	Al_2O_3	Fe_2O_3
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Sheet Glass	73	—	14	11	—	1	1
Plate Glass	78	—	13	6	—	2	1
Flint Glass	51	14	—	—	34	½	½
Green Bottle Glass.....	62	—	3	23	—	10	4
Bohemian Glass	76	15	—	8	—	½	½
Optical Glass (very variable)	44	12	—	—	43	½	½

Uses of Different Glasses.—Crown, sheet, and plate glass are used for windows. Flint or lead glass is used for domestic articles. Green bottle glass is used for bottle making, and may be made with sand containing a larger proportion of impurities than is permissible in sand to be used for the manufacture of colourless glass. Bohemian glass is used for flasks and for other chemical apparatus which may be required to withstand a high temperature. Sheet glass and flint glass melt at a lower temperature than Bohemian glass, and green bottle glass usually has a melting point intermediate between that of flint glass and Bohemian glass.

Coloured Glass.—Coloured glass is usually produced by adding a small quantity of one or more metallic oxides to molten colourless glass, or to the mixture of raw materials before fusion; but in some cases a metal, or sulphur, or organic matter is employed instead of a metallic oxide. The quantity of metallic oxide repuired to impart a deep colour is often only a small fraction of 1 per cent. of the total weight of the glass.

Many different recipes for producing glass of a specified colour have been adopted by different manufacturers, and the following list gives but a few of the materials used for imparting colour to glass. The colour of the glass is, of course, as largely dependent upon the quantity of the colouring agent employed as upon its composition. Sulphur, for example, may produce a yellow glass if added in small quantity, or a black glass if in larger quantity:—

Deep blue glass may be produced by adding oxide of cobalt.

Sky blue glass may be produced by adding oxide of copper (0·01 per cent.)

Deep green glass may be produced by adding ferrous oxide or oxide of chromium.

Yellow glass may be produced by adding ferric oxide or sulphur.

Orange glass may be produced by adding ferric oxide and manganese oxide.

Purple glass may be produced by adding manganese oxide.

Red glass may be produced by adding suboxide of copper.

Crimson red glass may be produced by adding gold chloride.

Black glass may be produced by adding sulphur (10 per cent.) or a mixture of metallic oxides.

Iridescent glass may be produced by exposing the hot glass to fumes of stannous chloride.

Raw Materials for Glass Manufacture.—The silica employed is white sand, almost free from iron. In certain districts beds of comparatively pure sand well adapted for glass manufacture are found. Sand containing ferric oxide produces glass of a yellow colour, and sand containing more than a trace of iron must not therefore be used for crystal or best quality plate glass. For ordinary sheet glass the iron oxide may amount to ½ per cent. To a certain extent the prejudicial effect of ferric oxide may be avoided by adding oxide of arsenic to reduce the ferric oxide to ferrous oxide, for ferrous oxide in small quantity merely gives a greenish hue to the glass. Manganese dioxide in small quantity imparts a faint violet colour to colourless glass, but when the manganese dioxide is added to glass having a greenish tint the colours neutralise one another, and an almost colourless glass is obtained. At one time the silica used for glass-making was commonly obtained by grinding flint; hence the name "flint-glass."

Soda is generally used in the form of "soda-ash" (sodium carbonate) and potash in the form of "pearl-ash" (potassium carbonate). Lime is used as quicklime, or as carbonate of lime either in the form of chalk or limestone. For the production of flint-glass the lead is added in the form of red lead (Pb_3O_4).

Cullet is the name given to the waste and broken glass obtained during the process of manufacturing sheet-glass and glass articles. Cullet is always mixed with the sand and other materials used for producing glass, for undue waste is thus prevented, and the cullet also acts as a flux. Potash and soda are to an appreciable extent volatile at the temperature required to cause sand to combine with the alkali and lime, and much of the alkali is liable to be lost by volatilisation unless cullet, which melts at a lower temperature, is added. The cullet dissolves all the glass-making materials, and causes them to enter into combination to form glass at a lower temperature than that required when no cullet is present. The consumption of fuel and the loss by volatilisation are therefore reduced by the addition of cullet.

Manufacture of Glass.—*Crown glass* has become almost obsolete, as glass can be manufactured more cheaply, more conveniently, and in larger sheets by casting. In making crown glass a mass of molten glass weighing from 10 lbs. to 20 lbs. was drawn from the melting-pot on the end of a blow-pipe. By blowing through the tube the mass was converted into a hollow bulb or globe. The bulb was removed from the blow-pipe, heated, and rapidly rotated until it assumed the form of a flat disc having a bullion or "bull's-eye" boss of glass in the centre. When the disc was subsequently cut into panes, the boss was cut out in a small pane and used for stable windows, or for residences built in the Queen Anne style. Imitation "bull's-eye" bosses are now made by casting glass in suitable moulds. The sizes of panes of crown glass were, of course, limited to much smaller dimensions than those obtained by casting.

Sheet glass is made by blowing the glass into the form of a hollow cylinder. The contracted end of the cylinder is subsequently cut off, and the cylinder is split along one side with a diamond and then placed in a furnace until it softens and can be opened out into a flat sheet; the sheet is then carefully annealed. All glass articles have to be cooled very slowly after manufacture, *i.e.*, annealed, for if allowed to cool rapidly they would be excessively brittle and liable to crack when subjected to a sudden change of temperature.

Plate glass is made by pouring molten glass on to a flat iron table and rolling it flat under a metal roller. Fillets placed along the edges of the table determine the thickness of the sheets. The surface of plate glass is ground by placing water and emery-powder upon the glass, then placing a heavy cast-iron plate over the emery and sliding the glass and iron plates so that a grinding action takes place between them. The glass may be subsequently smoothed by rubbing two of the glass plates together with fine emery between them, and finally polished by rubbing machines working with an epicycloidal motion.

Etching by Hydrofluoric Acid.—The glass is covered with a thin layer of beeswax, and designs are drawn through the wax with a needle or by machinery. The articles are then dipped into a solution of hydrofluoric acid contained in gutta-percha or lead troughs provided with lids. Weak acid attacks the glass slowly, but produces clear designs. When the etching is completed, the wax is removed and the glass washed in hot water containing washing-soda. The length of the period of exposure to acid and the strength of the acid are regulated to suit the designs to be etched. Etching may also be accomplished by exposing the waxed glass on which the design has been drawn to the vapour of hydrofluoric acid.

Etching by Sand-blast.—Etching is now largely executed by means of the sand-blast. The etching is not so fine, nor is it possible to etch such delicate patterns with the sand-blast as with hydrofluoric acid, but for the etching of glass panels for public-houses, and for etching of a similar character, the work of sand-blast is sufficiently fine. The glass is pasted over with a paper stencil, and the sand etches only that portion of the glass exposed by the stencil. By concentrating the sand-blast on any particular spot on the glass, a hole may be driven through plate-glass ½ in. in thickness in a few minutes.

Masonic Hall, Newtownards, Belfast.—The new Masonic Hall in Newtownards was dedicated recently. The hall is situated in James-street. Mr. A. Donnelly was the architect.

OBITUARY.

MR. W. B. WILKINSON.—Mr. W. B. Wilkinson, of Newcastle-on-Tyne, who died on October 13, in his eighty-fourth year, was the founder of the firm of W. B. Wilkinson & Co., of Newcastle-on-Tyne and London, and the originator of the now well-known concrete pavings. The first floor ever laid in this form was a greenhouse floor in Newcastle-on-Tyne by this firm, and afterwards the business greatly developed, the paving being laid all over the kingdom, and even as far away as Lisbon. Mr. Wilkinson took out a patent in 1854 for fireproof construction, in which he used wire rope and small bars embedded below the central axis of the concrete. In 1856 he patented a hollow tubular fireproof and soundproof partition, and in the eighties an ornamental concrete paving, which he called "Specular Granitic." Mr. Wilkinson was Chairman of the Newcastle and Gateshead Gas Co., director of the Newcastle and Gateshead Water Co. and the North Shields Gas Co., and was connected with many of the largest businesses of the North of England.

GENERAL BUILDING NEWS.

ST. PATRICK'S CHURCH, TRIM, IRELAND.—On the 12th inst. St. Patrick's Church, Trim, Meath, was dedicated. The church comprises sanctuary, nave, transepts, side aisles, side chapels, nuns' choir, and two sacristies, and heating-chamber. The total internal length of the church is 137 ft. 8 in., and the width across transept 77 ft.; height from floor to ceiling, 50 ft.; length of nave, 106 ft., and width 30 ft.; width across nave and aisles, 60 ft. The roof is of hammer beam construction, the timbers supported on marble shafts with carved caps and moulded bases. The ceiling is of pitch pine, divided into panels by mouldings. The nave is divided from aisles and transepts by moulded arches, supported on polished granite columns with moulded caps and polished bases. The nave is lighted by five three-light tracery windows on each side in the clearstory. The transepts are 27 ft. 6 in. wide by 22 ft. 3 in., having two confessionals in each side, and lighted by five-light tracery windows in gables. They are roofed and ceiled in every respect similar to the nave. The aisles are lighted by lancet windows with traceried heads, one in each bay. The sanctuary is 32 ft. long by 27 ft. wide, and is lighted by five-light traceried windows; the ceilings of the sanctuary and side chapels are groined arching in fibrous plaster springing from polished marble shafts. The nuns' choir, which is 24 ft. long and 16 ft. wide, is divided from the sanctuary by a carved and panelled oak screen. The principal entrance to the church is through the tower porch. The tower itself, which is 25 ft. square, rises to a height of 100 ft., with octagonal pinnacles at angles, surmounted by a spire 90 ft. high. The total height of the spire from the ground to the top of the cross is 208 ft. The church is also entered by two porches at the west end, on each side of the tower, and by two at the east end of the transepts. The walling generally and cutstone throughout are of Irish limestone; the roofing, &c., of pitch pine. The organ gallery is situated in the tower. The floor of the sanctuary is laid in mosaic work of Celtic design, with emblems of the Holy Evangelists and other ecclesiastical symbols, taken to a large extent from the Book of Kells and the Book of Durrow. The Communion rail, which is of Sicilian marble, with polished marble shafts and carved and moulded caps and bases, extends across the full width of the church, including sanctuary and side chapels. The gates in the centre of the Communion rail are of hammered and beaten brass, with ornamental floriated work. The high altar is of Sicilian marble generally, with coloured marble shafts, and sculptured groups in statuary marble. The high altar table is 9 ft. long, supported on polished shafts of Mexican onyx, with carved caps and moulded bases. In the frontal of altar are three groups, consisting of—in the centre, the Sacrifice of Abraham; on the Epistle side, the Sacrifice of Melchisedeck; and on the Gospel side the Sacrifice of Abel. The canopy over Tabernacle is surmounted by gables on four sides, with carved crockets and finials, the arch of canopy is cusped, the canopy is supported on shafts of foreign marbles, with carved caps and carved and moulded bases; the Tabernacle door is of ornamented hammered brass, gold plated. The spire over canopy has pinnacles at each angle, with carved crockets and finials. The total height of canopy and spire to top of cross from sanctuary floor is 27 ft. The first stage of reredos over candle benches is formed of moulded arches supported on coloured marble shafts, with carved caps and moulded bases. The upper portion of reredos on each side of central canopy consists of two canopied niches, with moulded and cusped arches, moulded gables, carved crockets and finials, with carved cresting; the arches supported on clustered columns of coloured marbles, with moulded and carved caps and moulded bases. The groups on the Epistle side of the altar consist of the Resurrection and Ascension; those on the Gospel side of the Nativity and Transfiguration. The wings of the altar at each end are surmounted by canopies and spires, &c., similar to central canopy; but containing in niches figures of St. Brigid on the Epistle side and St. Patrick on the Gospel side. The church was designed by the late Mr. W. Hague, architect, of Dublin, and the shell of the building carried out under his superintendence. After the death of Mr. Hague the work was entrusted to Mr. William H. Byrne, architect, Dublin. Mr. Patrick Nolan, of Monaghan, was the builder. Messrs. James Pearse & Son, of Dublin, were contractors for the high altar, Mr. Edmund Sharpe for the communion rail, and Mr. George Smith for one of the side altars. The brass ornamental gates of the Communion rail were made by Messrs. Smith & Son, of Dublin. Mr. Ludwig Oppenheimer was contractor for the mosaic flooring of the sanctuary.

CONGREGATIONAL CHURCH, LEEDS.—Trinity Congregational Church, Leeds, is situated in Woodhouse-lane. Erected from designs by Messrs. Danby & Simpson, the buildings comprise church, a lecture-hall, vestries, class-rooms, and caretaker's house. The church consists of nave, aisles, transepts, chancel, and a tower and spire rising to 130 ft. The main entrance is approached by a flight of stairs leading to an outer vestibule. Above is a seven-light window, and there is a corresponding window at the chancel end. The latter is filled in with stained glass, and this is the case also with one of the series of two-light windows in the south aisle. The pulpit is at the corner of the southern transept, and is of carved oak resting on a pediment of Caen stone, relieved with alabaster pillars. The fittings in the chancel, the choir stalls, and the organ-case are also in carved oak. The pews are of pitch pine, and give accommodation for over eight hundred worshippers. There are no galleries. The chancel window is by Messrs. Atkinson Bros., Newcastle-on-Tyne. The other memorial window is a reproduction by Mr. T. F. Curtis (of Messrs. Ward & Hughes, London) of the altar-piece in the church at Molde, Norway. The contractors were:—Masonry, Messrs. C. Myers & Sons; carpentry, Messrs. H. Atkinson & Son; plastering, Mr. J. W. Watson; slating, Messrs. J. Atkinson & Son; plumbing, Messrs. W. Barrand & Co.; painting, Mr. A. Bateman; heating apparatus, Messrs. J. and H. Smith; electric lighting, Mr. Norman Hirst and Mr. A. Dickinson.

WYCLIF BAPTIST CHURCH, NEWCASTLE-ON-TYNE.—Wyclif Church Elswick-road, Newcastle, has just been opened. The full accommodation is for a mixed congregation of about 450. The building consists of a nave with hammerbean open-timbered roof and plastered ceiling. There are double transepts on each side with timber arches supported on iron columns, and each transept is lighted with a three-light traceried window. Two two-light traceried windows are in each side of the wall of the nave. There is a projecting portico in front with vestibule and inner lobbies. On one side is a vestry, and on the other side a staircase in the tower, which gives access down to the schoolroom, and will give access up to the gallery when it is constructed. There is also a staircase on each side of the pulpit down to the schoolroom, and the minister's and deacons' vestries. The seating is arranged semicircularly. The heating is by hot-water pipes and radiators. There is an exit door from the tower, and another from the back into Northbourne-street. The two front entrances are from Elswick-road. All the doors open outwards. Under the church are a church parlour, vestries, a heating-chamber, and lavatories, &c. The contract for the building was 4,383*l.*, including boundary walls, gates, railings, &c. The builder is Mr. A. Bruce, Newcastle; the architects are Messrs. G. Baines and R. Palmer Baines, London; and the work has been carried out under the supervision of Mr. W. I. Lamb, clerk of works.

CHURCH, ETTINGTON.—On the 16th inst. the foundation-stone of a new parish church was laid at Ettington, near Stratford-on-Avon. Messrs. Collins & Godfrey are the contractors. The new church has been designed by Mr. C. Ford Whitcombe, and is a cruciform structure in the Perpendicular style.

RECONSECRATION OF WITTON-LE-WEAR CHURCH, DURHAM.—The ancient church at Witton-le-Wear having been restored and very largely rebuilt, it has just been reconsecrated. The rebuilding was estimated to cost 3,000*l.* The work has been designed and carried out under the superintendence of Mr. C. Hodgson Fowler, F.S.A., of Durham.

CHURCH, WEASTE.—The foundation-stone of the Queen Victoria Memorial Church, Eccles New-road, Weaste, was laid on the 18th inst. The building, which will accommodate 400 persons, is to cost 3,500*l.* The work is being carried out from the designs of Messrs. Royle & Bennett, of Manchester.

CHURCH, BOOTLE.—The foundation-stone of a new Free Church was laid in Merton-road, Bootle, recently. The contractor is Mr. Peter Tyson, of Liverpool; and the architect is Mr. T. T. Rees. The new church, which is to be built of brick, with terra-cotta and red pressed brick facings, will have seating accommodation for between 800 and 900 people; and the plans provide for a large and small assembly hall, vestries, classrooms, &c. It will be lighted with electricity, heated with hot water. The total cost will be about 2,300*l.*

CONGREGATIONAL CHURCH, BURY PARK, LUTON.—The tender submitted by Messrs. T. & E. Neville & Co., Luton, amounting to 4,429*l.*, has been accepted for this church, and building operations have been commenced. The architects are Messrs. George Baines and R. Palmer Baines, of London.

MISSION HALL, WHITBY.—A new mission hall is being erected to take the place of the Wharf Hall, Whitby. The room will be 51 ft. by 28 ft. 8 in. The walls will be of brick, with piers on each side up to the eaves. The floor is to be composed of wood blocks. The contractor is Mr. H. Pinder, Mr. J. Kidd doing the masonry work. Mr. E. H. Smales is the architect.

MISSION BUILDING, CAMBERWELL, S.E.—A mission building which has been erected at the corner of Sandover and Kempshead roads, Camberwell, for the United Girls' School Mission, was opened on the 18th inst. It is of red brick with stone dressings, and was designed by Mr. R. Creed, of Finsbury-circus. The roof is temporary, as the entire scheme will not be carried out at present.

MISSION ROOM, SHEFFIELD.—A mission-room is being erected in Forncett-street, Sheffield. There will be two floors. The upper one will consist of a room, 50 ft. by 32 ft., capable of seating about 300 people, and for Sunday school purposes this will be divisible by means of movable partitions into three rooms. Underneath there will be a young men's club, kitchen, store-rooms, &c. Provision will be made for heating, lighting, and ventilating. The premises will be of brick with stone facing. The new mission-room will stand at the corner of Cossey-street and Forncett-street, and there will be two entrances, one in each thoroughfare. Mr. J. Norton is the architect, and Mr. G. Carr the contractor.

CHURCH, SOUTH LONDON.—The Bishop of Rochester consecrated on the 14th inst. the new Church of St. Bartholomew, which has been erected in Wycliffe-road, Lavender-hill, S.W. The new building is capable of seating 600 persons. The structure has been designed by Mr. G. H. Fellowes Prynne, of Westminster.

RESTORATION OF LANGTOFT CHURCH, YORKSHIRE.—The Archbishop of York visited Langtoft on the 10th inst. for the purpose of reopening the church there after restoration. Mr. Hodgson Fowler, of Durham, was the architect, and Messrs. Thompson & Co., of Peterborough, were the builders. It is about eighteen months since the work was begun by the demolition of the old nave, which has since been entirely rebuilt. The tower, which is of the Norman order, has been thoroughly repaired. It was found necessary to rebuild two or three feet at the top, as well as to provide a new roof, but the new work is a replica of the old. There are two bells in the tower, dated 1620 and 1641, and these have been rehung and the old frames repaired. To ring the bells the ringers stood on the ground at the bottom of the tower, but the restoration includes a new ringing chamber with oak floor. The bottom of the tower has been newly flagged, as, indeed, has the entire church, the present flagging being 6 in. or 8 in. lower than the floor it replaces. The nave is new, and has both a north and south aisle, whilst the nave that it replaces was without aisles. At the end of the north aisle a new organ-chamber has been built, with vestry behind and heating-chamber beneath, from which the church is to be heated with hot air. The windows of the aisles are at present plain, but they are to be filled with stained glass. The chancel arch has been repaired, and the chancel has been new roofed. The walls and the stonework of the windows have been repaired, but all the old features have been retained or reproduced. A new carved oak pulpit, with a lectern, also of carved oak to correspond, has been provided. The church has been seated throughout with oak seats. The porch has been rebuilt, and the south door is of oak, and the doorway is surmounted by a moulding with bosses.

WORKMEN'S CLUB, CRAGHEAD, CHESTER-LE-STREET.—At Craghead, near Chester-le-Street, it is intended to build a new club. Plans have been approved by the Council, the estimated cost of the building is about 1,400*l.*, and the drawings have been prepared by Mr. George J. Stephenson, architect, Newcastle-on-Tyne. The ground floor consists of reading, smoke, and refreshment rooms, together with kitchen, scullery, and the usual outbuildings, with large cellar accommodation underneath. The first floor embraces a billiard-room, with rooms for the Committee and apartments for the Steward. The whole of the building is of red pressed brick, with stone dressings, and dark green slated roof.

FREE LIBRARY AND TECHNICAL SCHOOLS, NEWTON ABBOT.—The foundation-stones of this building were laid recently. The free library, although forming a part of the whole group, will be practically a separate building from foundations to roof. It will occupy the part of frontage to the left, in Bank-street, and it is to comprise, on the ground floor, a general reading-room, 40 ft. by 20 ft.; a main hall, lavatory, and sanitary provisions, with a magazine-room, 24 ft. square. From the central hall a staircase will give access to the first floor, which will contain the main lending library, 40 ft. by 20 ft. On the main landing will be the borrowers' lobby, with counters and book indicators. There will also be a reference library for students, measuring 24 ft. by 17 ft. 6 in., and beyond this a librarian's room for the repair of books and other purposes. The second or upper floor of the library will contain rooms for the care

taker, and is so designed that access may be given to the technical schools, so that one caretaker may superintend the entire group. It also contains book and newspaper stores, with lift communication to the library floor. A large portion of the original site has been given up to street improvements. The technical schools will comprise, on the ground floor, an entrance lobby and central hall, from which will be approached a general chemical laboratory, 36 ft. by 19 ft., with Principal's and balance rooms opening therefrom. There will also be a physical laboratory measuring 28 ft. by 19 ft., a Principal's room, 20 ft. by 13 ft., and a general lecture hall, 30 ft. by 26 ft., with semi-circular gallery seating. In addition to this there will be a dark room for photography, a lavatory, and the necessary sanitary accommodation. From the main hall a staircase gives access to the upper floors, which comprise, on the first floor, six science classrooms for different purposes, measuring from 33 ft. by 20 ft. to 20 ft. by 16 ft., a cookery-room, and for domestic subjects generally, 26 ft. by 18 ft., and a mechanical drawing room, 37 ft. by 19 ft. The second or upper floor is devoted almost entirely to art, and comprises an elementary art room, 37 ft. by 19 ft.; a figure and cast room, 33 ft. by 20 ft.; a modelling room, 20 ft. by 19 ft.; a painting room, 26 ft. by 18 ft.; classroom, 20 ft. by 16 ft.; and an art master's room, 21 ft. by 14 ft. 6 in. At present it is intended to omit the lecture hall, &c., at the back of the building, but it is hoped to complete the scheme at some future time. Mr. Silvanus Trevail, of Truro, is the architect. Mr. Goss, of Torquay, is the builder.

Heswall Tuberculosis Hospital.—On the 20th inst. the new Tuberculosis Hospital at Heswall was opened. The firms who took part in the erection of the new hospital were as follow:—Architect, Mr. Charles H. Lancaster, Liverpool; clerk of works, Mr. C. P. Green, Heswall; builder, Mr. Thomas Spencer, Aintree; plumbing, Mr. W. Rain, Everton; plastering, Messrs. H. Johnson & Sons, Liverpool; hot-water apparatus, Messrs. Killick & Cochran, Liverpool; heating apparatus, Messrs. Bramham & Sons, Liverpool; general fittings, Messrs. R. Garnett & Sons, Warrington; key for opening by R. C. Oldfield, Liverpool.

Manchester Technical School.—The Manchester School of Technology has just been opened by Mr. Balfour. It has occupied seven years in the equipment and building, and a sum of 300,000*l.* has been spent upon it. The building has been erected from the designs of Messrs. Spalding & Cross, London, by Messrs. R. Neill & Sons, Manchester. It is constructed of terra-cotta and Accrington brick in the French Renaissance style. In addition, a dyeing, bleaching, printing, and finishing house for textile goods, and for the manufacture, dyeing, and finishing of paper, is being erected close to the main building. The chief entrance is in Sackville-street, and beyond is a large entrance-hall, from which the main and two subsidiary staircases lead. The hall has an area of 4,000 sq. ft., and over it is an examination and lecture room, and over that again a chemical laboratory, both of corresponding size. The basement is a workshop for spinning and weaving, mechanical, steam, electrical, and hydraulic engineering, while elsewhere are other laboratories for instruction and research in other departments, for one purpose of the school is not only to give instruction, but to facilitate study and investigation.

New Variety Theatre, Chelsea.—The foundation-stone of a new theatre of varieties, in Chelsea, was laid on Wednesday. The building, which is already far advanced, is situated in the King's-road, almost opposite the Town Hall. The hall will have a seating capacity of about 2,000. It has a frontage of 106 ft. and a depth of 150 ft. The pit floor has been kept on the same level as the pavement in King's-road. The auditorium will be 64 ft. wide, 84 ft. from the front wall to the curtain line, and 46 ft. in height from the pit floor to the ceiling. The dimensions of the stage are 80 ft. by 31 ft., and the proscenium opening is 30 ft. in width. Mr. C. T. Kearley is the builder, and the architects are Messrs. Wylson & Long.

STAINED GLASS AND DECORATION.

New Windows, Staincliffe Church.—Three stained glass memorial windows have just been erected in the chancel of Staincliffe Church, Dewsbury. The centre window illustrates the Resurrection, and the side windows are filled with groups of adoring angels. The work has been carried out by Messrs. Powell Bros., of Leeds.

Windows and Screen, Unitarian Church, Rochdale.—New screens and windows have just been placed in this church. The screens are the work of Messrs. Harry Hems & Sons, of Exeter. Messrs. Hems & Sons are also at work upon a floor of coloured marbles for the baptistry, a marble base upon which to raise the archial font itself, and oak panelling, &c. A chancel window and a couple of smaller ones in the body of this church have recently been completed. The figures in the chancel window are 6 ft. in height, and personify Truth, Liberty, Knowledge, and Faith (all in the upper row); and those in the second row, Justice, Prudence, Love (represented as the Christ with pierced hands and feet), and Humanity. The figures are from the drawings of Sir E. Burne-Jones, but the backgrounds are from the designs of Mr. Dearle, principal artist to Messrs. Morris, of Merton Abbey, who have executed the three windows. The two smaller windows, the three-light window in the south aisle, contains figures by E. Burne-Jones of Faith, Charity, and Hope. The window at the west end of the south aisle contains figures of Martha and Mary.

St. John the Baptist Church, Hoxton.—This church was reopened on the 14th inst., having been decorated by Messrs. Campbell Smith & Co., and also restored, under the directions and superintendence of Mr. Reeves. Subscriptions are invited to make up a balance of 1,200*l.* to defray the total outlay involved, which amounts to 4,000*l.* The scheme of decoration comprises the painting of the ceiling in compartments with pictures of angels and other figures mentioned in the Apocalypse, upon a background of blue, and of the walls and galleries in a terra-cotta colour, with relief in gold; electrical lighting has also been installed. The church was built in the New North-road, at the corner of Pitfield-street, in 1825-6, and after the "Georgian" manner, for 2,000 sittings, with part of the 100,000*l.* voted for church building by the Parliament.

St. Philip's Church, Kennington.—St. Philip's Church, Kennington-road, is undergoing restoration. The interior has been decorated from designs supplied by Professor Beresford Pite. The work has been carried out by Messrs. Love & Co., decorators, Strand.

FOREIGN.

France.—A committee has been formed in Paris for the purpose of raising a monument to Zola. M. Charpentier has offered to execute gratuitously a statue of the eminent novelist, of whom he produced, two years ago, a remarkable medallion portrait.——A monument to Baudelaire is shortly to be inaugurated in the Mont-Parnasse Cemetery.——A room at the Trocadéro Museum is to be devoted to the sale of reproductions of the plaster models in the galleries.—The Museum of St. Germain-en-Laye has acquired a collection of prehistoric drawings made on the bones of animals existing in the stone age.——The Government has voted 300,000 francs towards the restoration fund of Mont St. Michael.——M. Bougouin, architect, of Nantes, has been commissioned to restore the church of Ancenis, at an estimated cost of 400,000 francs.——The interesting Hôtel Maury, at Troyes, has been partially destroyed by fire. It is classed among the "Monuments Historiques." The tower has been entirely destroyed.——The Municipality of Paris is about to undertake, in concert with the Government, the restoration of the frescoes which decorate the porch of the church of St. Germain l'Auxerrois.——In the transepts of the Protestant church of the Oratory of the Louvre some mural paintings have been discovered, which were concealed under a thick layer of whitewash. One of the paintings appears to represent the conversion of St. Paul on the road to Damascus. The paintings appear to date from the seventeenth century.——A large square tower is to be erected on the quay at Bordeaux, intended to carry a marine observatory.——M. Dionis du Séjour, architect to the Government, and expert adviser to the Tribunal of the Seine, has died at the age of 61. He was also architectural inspector to the Odéon Theatre, and some years ago directed the additions to the Magasins du Petit-Saint-Thomas, in the Rue du Bac.——The death is also announced, at the age of 84, of M. Jules Richomme, the painter. He belonged to a family of celebrated engravers. Having commenced his career as a portrait painter, he subsequently obtained a fresh success as a painter of historical and *genre* subjects. Among his numerous works may be mentioned the decoration of the Chapel of St. Vincent de Paul, in St. Severin; and the paintings in the Cour d'Assises of the Department of the Seine. He had received medals at various Salons, and in spite of his advanced age, exhibited two pictures at the Old Salon in the present year.

MISCELLANEOUS.

"Euboelith" Flooring.—We have received a small sample of a flooring material under this name, made by the Euboelith Patent Flooring Co. It appears somewhat like a thin slip of wood laid on and incorporated with a backing of fine concrete. The material really consists, however, of a chemical compound of sawdust or wood "meal"; the top finish is like that of planed and dressed boarding, but it has the advantage of being jointless and free from splinters. So far as it is possible to form an opinion from the examination of a small sample, it seems to be a very useful kind of flooring. We cannot speak as to its wearing qualities, but the manufacturers enclose some testimonials, one of them from the owners of a cotton-spinning mill in Germany, which speak well of it in this respect. The testimonials, we observe, are all from German sources, so that we presume its chief use has hitherto been in that country. It is worth attention in England.

The Scottish Presbyterian Church, Regent-square.—Last week was opened the new organ, built by Messrs. Brindley & Foster, of Sheffield, which has been erected at a cost—including that of some minor alterations in the interior of the church—of about 1,500*l.* The church was built in 1824-5, after designs by William Tite, for Edward Irving's congregation, who migrated thither from the "Caledonian Church" established nine years previously in Cross-street, Hatton-garden. The design of the church is conspicuous for its two lofty twin towers, part of the principal front which, it is said, Tite adapted from the west façade of York Minster. The fabric was renovated and enlarged forty-two years ago, when the style of the church was changed from the "National Scots Church" to its present designation.

Proposed Borough Hall, Lambeth.—The General Purposes Committee of the Lambeth Borough Council have opened negotiations for the purchase, at a price of 25,425*l.*, of a site at the corner of Acre-lane, Brixton, and Brixton-hill, for the erection thereon of the proposed municipal buildings, to comprise offices, a council chamber, and a Town Hall, in lieu of their present unsuitable and confined quarters at Kennington Vestry Hall. The Finance Committee recommend that the London County Council should be asked to sanction the borrowing of that sum, to be repaid by equal instalments of 508*l.* 10s. during a period of fifty years.

Technical School, &c., Blackpool.—Lieut.-Colonel A. C. Smith, R.E., an inspector of the Local Government Board, held an inquiry at Blackpool, on the 15th inst., into the application of the Corporation to borrow 3,700*l.* and 1,700*l.* for the purchase of land in Raikes-parade for technical instruction and public library purpose; 2,300*l.* and 2,200*l.* for the erection of a branch reading-room and gymnasium at Revoe; 760*l.* for the construction of a storm water sewer from Whitegate-lane; 4,032*l.* for works of private street improvements; and 1,750*l.* for works of public street improvements on the Corporation Gynn estate.

Labourer's Fatal Fall.—Dr. Henslowe Wellington, Deputy Coroner, held an inquest at Westminster on the 17th inst. upon the body of William Corwin, aged thirty, a labourer, lately living at Melina-road, Shepherd's Bush, who was killed whilst engaged in demolishing a building in Buckingham Palace-road in connexion with the extension of the London, Brighton, and South Coast Company's station at Victoria. William Slater, a fellow-workman, said that on Wednesday morning he and five others were engaged in demolishing the old Pimlico Wheelworks. Deceased was engaged in removing the roof. The latter was a flat one, supported by cast-iron pillars. About half the roof had been removed when he felt the building shake. Four of the men went down a ladder to the ground. Part of the roof fell in before deceased could get away, and the material broke through two of the floors. Deceased fell with the material, and was crushed beneath it. He was dead when he was taken from beneath the material. Another man fell, but was not seriously injured.—The foreman of the works stated that the roof was concrete, and was 7 in. or 8 in. thick. He could not account for the collapse.—Mr. T. B. Brown, the resident engineer, said he had found since the accident that there was nothing to hold the columns. The building must certainly have collapsed eventually. The jury returned a verdict of "Accidental death."

The St. Helens Building Accident.—Mr. Brighouse, County Coroner, held the inquest at Peasley Cross, St. Helens, on the 16th inst., on Farrington Walter Dean, aged twenty-three, of Westfield-street, who died in the St. Helens Hospital, after being injured by the falling of the wall of a two-story building near the old Phœnix Vaults, Canal-street, which was being demolished. Mr. E. W. Swift appeared for Mr. Fred. Brown, builder.—Henry Brown, foreman, said that at the time of the accident they were taking down a two-story house and shop. They had taken off the roof, and cut the wall at the corners in order that a rope might be put round the chimney and the wall pulled into the building, so that it would smash up the joists and the whole of the inside. Witness was in the middle of the street watching the wall. A gust of wind came, and witness saw the wall going, and shouted to deceased. Dean immediately jumped off the floor that he was on into the shop below, with the intention of running out of the front door, but the wall caught him before he could get clear. At the time the wall began to move deceased was pulling the rope up, with the object of putting it round the chimney. Witness, in answer to Mr. Swift, said that if Dean had acted on his warning at once, instead of stopping to warn Burns, he might possibly have got clear. They had cut the ends of the wall away, but had not supported the wall at all.—The Coroner said that under those conditions they would not have got him to go up a ladder leaning against such a wall to put a rope round the chimney.—A Juryman: It is a poor wall that will tumble over like that.—John Burns, labourer, of 57, Water-street, said he had assisted in the demolition of property in Bridge-street, &c., for the past six months. He thought the wind and rain caused the wall to fall. Witness was knocked down by the fall, and his leg was hurt. It was often difficult to pull a wall over. A day or two before they had to get about ten men more than were on the job to pull one of the Phœnix walls

over. The jury returned a verdict of "Accidental death," and regretted that the foreman omitted to take the necessary precautions so as to have the wall taken down in a workmanlike manner.

LIGHTING, HEATING, AND SMOKE ABATEMENT.—A Lighting, Heating, and Smoke Abatement Exhibition at the Crystal Palace is to be opened on Saturday, December 13, for five weeks. Preparations for a representative display were commenced many months ago, and we are informed that the forthcoming exhibition will cover a much wider sphere than its precursor of last year, and at the same time include all the latest and most recent improvements in gas lighting and heating. The most important new feature of the exhibition will be the coal smoke abatement section, which is being organised under the patronage of the Coal Smoke Abatement Society; and the Society are offering a prize of 50*l.* for the best domestic open grate which, in the opinion of a jury to be appointed by Sir William B. Richmond, President of the Society, is best capable of consuming its own smoke. The section will be situated in the Centre Transept, while a further space in the building will be set aside where exhibitors can show their various appliances in operation. There will also be sections illustrating gas engineering, electricity, and acetylene.

FOREIGN GOODS AND PARCELS RATES.—Messrs. Neale & Wilkinson send us a pamphlet containing a tariff of the rates for conveyance of goods and parcels to all parts of the world. The principal places abroad are alphabetically arranged under their respective countries.

LLANDUDNO PROMENADE SEA DEFENCE WORKS.—On the 16th inst. Colonel A. G. Durnford, an Inspector of the Local Government Board, held an inquiry with reference to an application by the Urban District Council of Llandudno for sanction to borrow 1,590*l.* for the purpose of completing the sea defence works in Llandudno Bay. Plans and estimates were submitted by the engineer, Mr. E. P. Stephenson.

TELESCOPIC SCAFFOLDS.—Several Royal residences and Government buildings have recently been supplied with Heathman's patent telescopic ladder towers, for use as portable scaffolds. Fifty have been purchased by the War Office and accepted after two months' critical examination and testing. At Windsor Castle two sets are in continuous use in one or other of the State apartments for cleaning the decorations on the walls and ceilings.

AUSTRALIAN SOFT WOODS.—The heavy timbers in which Australia is so rich have become famous for their exceptional hardness and durability, but comparatively little is known outside the Commonwealth of the numerous soft woods admirably adapted for the manufacture of furniture and for other industrial purposes. Such timbers are abundant in New South Wales, and are found principally in the immense brush forests of the coastal districts. Several of these timbers have a wood grained and marked most beautifully, and capable of receiving the highest polish, while others are fragrantly perfumed. Among the chief varieties of woods of this class may be mentioned the red cedar, the beautiful wood of which is admirably adapted for the finer kinds of cabinet-makers' work. Some of the cedar trees grow to immense size, as much as 2,500 cubic feet of valuable timber having been obtained from one tree. In addition to the cedar may be mentioned tulipwood, yellowwood, white maple, myall, marblewood, mock orange, and many others. Besides their use for cabinet-making, many of the brush timbers are of great utility for the rougher kinds of carpentry, while some, both hard and soft woods, are admirably adapted for coachbuilders' and coopers' work. The chief description of pine growing in New South Wales is the Moreton Bay white pine, found in the coast districts, as far south as the Bellinger. It is soft, light, and easily wrought, and suitable for all the interior woodwork of houses as well as for cabinet-making. The red or black pine is extensively distributed over the Liverpool Plains, and in the Lachlan and Darling River districts, as well as around Berrima. It is beautifully marked in the grain, takes a fine polish, and has an agreeable fragrance. There are numerous other varieties of pine, but these resemble in their main features the trees already described. Australian deal is an excellent timber, and is obtained in very large scantling, the tree frequently reaching 120 ft. in height. It is soft, close-grained, easily wrought, and remarkably free from knots.

LUXULYION CHURCH BELLS.—Mr. Sylvanus Trevail, the architect, has presented a peal of six bells to Luxulyion Church, three of them being old ones re-cast, and three new ones, the work of Messrs. Gillett & Johnston, of Croydon. The bells were dedicated on Tuesday, the 14th inst., amid a large gathering of representative people of the neighbourhood.

BOARD OF EDUCATION, SOUTH KENSINGTON.—The following is the list of candidates to whom National Scholarships (Art) and Free Studentships (Art) have been awarded for the year 1902:—National Scholarships.—H. C. Smith, Dundee; H. A. Treganowan, Cambourne; Annie M. Shepherd, Aberdeen; J. Stoope, Belfast; G. Bain, Edinburgh; W. A. Wildman, Manchester, Municipal S. of A. Free Studentships.—N. R. Hall, Leeds; O. Schwemmer, Manchester, Municipal S. of A.; W. McBride, Dublin; F. P. Brown, Stoke-on-Trent; F. Lightowler, Manchester, Municipal S. of A.; Sidney Boyes, Southampton; G. J. Mitchell, Dundee; J. R. Shea, Burnley; H. A. Budd, Hanley; J. R. G. Exley, Skipton; Annie W. Morton, Edinburgh; W. M. Whitehead, Burnley; J. Gibson, Bury; N. M. Morrow, Belfast; Annie R. Hetherington, Carlisle. A National Scholarship entitles the holder to an allowance of 25*s.* a week for the session of about forty weeks each year for two years, free admission to lectures and one or more of the technical classes, and instruction in one of the four schools of the College. A Free Studentship entitles the holder to free admission for two years to the lectures and instruction in one of the four schools of the College.

NEW ELECTRICITY STATION, WORCESTER.—A new station has been erected for the Worcester Corporation, overlooking Hylton-road, Worcester. The building has been erected from the plans of Mr. A. B. Rowe, and it is estimated to cost, including site and plant, 30,000*l.* The electrical engineer is Mr. Sutherland.

PROTECTION OF THE MANSION HOUSE FROM FIRE.—As a result of ihe Queen Victoria-street and other City fires the Corporation has decided to reorganise the fire protective arrangements at the Mansion House, and Messrs. Shand, Mason, & Co., of Blackfriars, have been entrusted with the work of providing a complete system of fire-mains and hydrants, with hose and all up-to-date accessories. The mains connect with the water company's 10-in. high-pressure supply, and are carried from the basement to the roof of the Mansion House, both at front and rear, with hydrants and hose attachments placed ready for use in case of an emergency on every floor. When the work is finished the Lord Mayor's domestic staff will, no doubt, be thoroughly drilled in the use of the appliances.

"A BUILDING SITE IN BLOOMSBURY."—In reference to the Note under this title in our last issue, Mr. Delissa Joseph writes to say that it is not quite correct that the site is to be let on building leases by the City Corporation; that it has been let on a building lease to a client of his, who is building shops and warehouses from his designs.

LEGAL.

EMPLOYERS' LIABILITY ACT:

WAS A SCAFFOLD NECESSARY?

AT Marylebone County Court (London), on Monday, before Judge Stonor and a jury, William George Pearce, a bricklayer, 14, Crawford-buildings, Marylebone, W., brought an action, under the Employers' Liability Act, against Messrs. Robertson & Sons, builders and contractors, 141, Edgware-road, W., claiming damages in respect of personal injuries, said to have been caused through negligence on the part of the defendants or their servants.

Mr. W. Giveen, counsel, appeared for the plaintiff, and Mr. W. Shakespeare, counsel, for the defendants.

Counsel for the plaintiff explained that on May 8 last his client was assisting in removing a large and heavy bressemer from above some stable doors in Wood's-mews, off Park-lane, W. Plaintiff advised the foreman to erect a scaffold so that there might be no danger in lowering the huge bulk of timber, but the reply was, "Don't mind a scaffold—steps will do this job." The plaintiff accordingly mounted a pair of steps and commenced pulling one end of the bressemer, while a man named Tennant, who was acting as foreman on the job, pulled the other end. Suddenly the bressemer "gave a jerk," and plaintiff fell heavily to the ground. For five weeks the unfortunate man was confined to his bed with a broken leg, and for fifteen weeks was unable to do his ordinary work.

The plaintiff bore out his counsel's opening statement.

Cross-examined: The bressemer was only about 9 ft. above the ground. He himself had cut away the brickwork before they commenced to remove the bressemer, and for this purpose he used only a pair of steps, which, however, he tied. There was nothing to prevent him tying the steps when they were removing the bressemer, but he did not ask for anything with which to tie them. The steps upon which he had been working did not fall, but he lost his balance. It was not a fact that the crowbar which he was using slipped from its hold and so caused him to fall back.

Mrs. Pearce, the plaintiff's wife, stated that Mr. James Robertson called to see her husband the day after the accident, and in course of conversation said, "That's the worst of Tennant; he won't have a scaffold put up."

Mr. Henry George Blackmore, a builder, Clapham, stated that he had viewed the job in question, and considered that a scaffold was necessary to do the work with safety.

Mr. James Robertson, of the defendant firm, stated that before the plaintiff commenced the work in question witness told him to use all the scaffolding which might be necessary. Witness was superintending the work in question, and not Tennant, who was shop foreman of the joiners.

George W. Tennant, referred to above, said that he was a carpenter, and that the plaintiff was not under him in any way on the job. It was not a fact that the bressemer was jerked.

Alexander Houghton, an apprentice, stated that a lever which the plaintiff was using slipped, causing the man to overbalance.

His Honour submitted several questions to the jury, and their answers gave rise to the question as to which side their verdict was in favour, and for whom judgment should be entered. His Honour reserved leave for the point to be argued by counsel on another occasion.

CASE UNDER THE LONDON BUILDING ACT.

AT the Bow-street Court last week, Samuel Polden, builder, of Woodstock-road, Uxbridge-road, was summoned before Mr. Fenwick for contravening the London Building Act.

Mr. Hayward, who prosecuted for the London County Council, said the defendant was erecting a large building at 116, High Holborn, the basement to be used as shops and the four upper floors as flats. The Act required that in every such building, if it exceeded ten squares in area (1,000 superficial feet), the different parts should be separated by walls and floors of fire-resisting materials, and have staircases and passages constructed in a similar way. In the building in question there was a staircase about 3 ft. wide made of deal. It stood upon a deal post, was some distance from the door, and there was an awkward bend. To bring the building within ten squares the defendant had built up two vaults, but even now it was not within ten squares. He (Mr. Hayward) considered the place a perfect fire-trap. Even with the vaults built up the danger was as great, and he wanted to relieve himself of the responsibility.—For the defence it was contended that the building was now within ten squares, but admitted that if a staircase which was to be erected outside was included that measurement would be exceeded.

Mr. Fenwick reserved his decision.

SURVEYORS' FEES.

AT the Southwark Police-court, on Friday last week, before Mr. Paul Taylor, Mr. W. R. Hough, builder, of 135, Great Suffolk-street, Borough, was summoned by Mr. Bernard Dicksee, District Surveyor, for the recovery of 1*l.* 10*s.*, fees in respect to surveying a stand erected at 283, Borough High-street, for the purpose of viewing the proposed Coronation procession on June 27. Mr. Pasmore was solicitor for Mr. Dicksee, and Mr. H. Brandon, barrister, defended.

The defendant was before the Court on June 19, on the summons taken out by Mr. Dicksee for failing to give the notice required by the London Building Act, 1894, and the magistrate then decided in favour of the complainant.

Mr. Pasmore was opening, when Mr. Brandon was asked by the magistrate what his defence was. Mr. Brandon said he felt that on the last occasion Mr. Paul Taylor was bound to convict. He was now arguing this case on fresh ground—that this was not a proper case in which a District Surveyor ought to have inspected. Section 5 of the London Government Act, 1899, made it compulsory to apply to the Borough Council for the licence to erect the stand instead of getting it direct from the District Surveyor. This was a small stand, and they had to deposit the plans with the Borough Council, who passed them; and they had to pay the fees to them before they would grant the licence. Then the District Surveyor came along and demanded his notice, so that the poor builder was like a rope, the Borough Surveyor pulling at one end and the District Surveyor at the other. It could not be a proper case for a District Surveyor to inspect a stand in a shop window with accommodation for about fifty persons when it had already been tested by Mr. Harrison, civil engineer, who was the Surveyor to the Southwark Borough Council. The case came within the words of the Lord Chief Justice in the City of Westminter *v.* Watson and Others, 1902:—"If in a proper case a District Surveyor, for a good cause on information received, had a duty to inspect in order to see whether any provisions of the Act had been infringed, he would be entitled to his fees, but he did not suggest that the District Surveyors would be entitled to claim fees in respect of every one of these structures because they had certain duties under the Act." Mr. Justice Channell said: "If in any case the surveyor did inspect properly, and not go for the purpose of getting his fee, he would be entitled to his fee." In this case he, Mr. Brandon, suggested that it was not a proper case, and that the District Surveyor inspected for the purpose of getting his fee.

Mr. Pasmore said that the only duties of the London County Council which were handed over to the London Borough Councils under the London Government Act were those in connexion with the licences of wooden structures, and in the section giving them that power no mention whatever was made of the District Surveyor. The District Surveyor had just the same powers as formerly, and the Act of Parliament very distinctly said that he should inspect in all cases where he had received

notice or made a discovery. In this instance the Magistrate had made an order for the defendant to give Mr. Dicksee notice. Mr. Dicksee was bound to inspect, and surely he was entitled to his fees.

Mr. Paul Taylor: I cannot refuse to make the order for payment without nullifying my decision in June last.

Mr. Brandon argued that the magistrate had power to do so because it had been decided in the case referred to that it did not follow that because a District Surveyor had received notice he was entitled to his fees.

Mr. Dicksee, in giving evidence, said that when he inspected the stand, three weeks after the plans had been passed by the Borough Council, he found that the supports to the seats were resting upon the floor parallel with the joists instead of upon them, so that the whole thing was liable to crash through the floor. He pointed this out to Mr. Hough, and the matter was remedied.

Mr Paul Taylor said that it had been suggested that the proper way for the London County Council to meet the difficulty was to reduce the scale of fees in certain cases. Mr. Justice Channell said: "The proper way for the County Council to meet this case was that, as the operation of taking away the licence from them was very greatly to diminish the duties which would likely fall on the District Surveyors, the County Council should make a direction, under Section 154 of the Act, imposing a smaller fee to be given to the District Surveyor in cases where the structure was licensed by the other authority." It must not be forgotten that if the Surveyor was not entitled to his fees he would lose a very considerable part of his income by reason of the provisions of an Act of Parliament which never in so many words authorised the creation of the Borough Surveyor. At present he was of opinion that the contention of Mr. Pasmore, that the Borough Council in appointing a Borough Surveyor to test wooden structures were going beyond the powers conferred upon them, was a sound one. He was of opinion also that every case of a wooden structure was a proper one for inspection by the District Surveyor, unless it was of an obviously trumpery, trivial nature. He would enforce payment of these fees, and would go on doing so until it was proved that the District Surveyor is doing that which he has no power to do.

Mr. Brandon asked the magistrate to state a case.

Mr. Paul Taylor said that the only point upon which a case could be stated was whether or not within the meaning of the judgment in the City of Westminster *v.* Watson and others this was a proper case. He, however, was distinctly of opinion that this was a proper case.

Mr. Brandon: Although he had previously paid a fee?

Mr. Paul Taylor: If it is necessary to find it I find as a fact that it is a proper case.

Mr. Pasmore pointed out that if the London County Council reduced the scale of fees they would have to grant the District Surveyors compensation.

Mr. Paul Taylor ordered the defendant to pay 1*l.* 10s. fees and 3*l.* 3s. costs.

MEESON *v.* HANDOVER.

THIS case was tried at Marylebone Police-court on the 21st inst., before Mr. Plowden.

Upon receiving a complaint, the District Surveyor for Paddington on the 16th inst. discovered that Messrs. W. H. Handover & Son were constructing in the great and small halls at the Paddington Baths floors for winter entertainments. These floors and the framings for their support occupied the space of the swimming baths usually filled with water, the floors being level with the side walks. The defendant had been instructed not to give notice to the District Surveyor, who now sought a penalty for neglect of notice.

Mr. Millner Jutsum, for the District Surveyor, contended that the works were floors of a public building, and under Section 78 were to be constructed in the manner approved by the District Surveyor.

For the builders, it was said that the erections were governed by the case of Venner *v.* McDonell, which had reference to seating at the Agricultural Hall, and the District Surveyor was not entitled to notice.

The magistrate approved the distinction drawn by Mr. Jutsum between the floors of the baths and the seating of the Agricultural Hall, and thought the case too clear for argument. He fined the defendants 10s. and 2*l.* 2s. costs.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

12,764.—A KILN FOR DRYING AND BURNING BRICKS: *G. Oakland. E. Oakland, and S. Oakland.*—There are two rows of chambers that are joined with openings and have a main flue between them; the openings are closed for the drying process. Heated air is drawn through a pipe beneath the floor, and thence through branch pipes into the chambers, and also through other pipes joined to the main flue.

12,773.—AN ELECTRICITY-ENERGY METER: *F. Battle and J. Bueno.*—In order to reduce the loss of energy the eleven coils forming two paths of the long drum armature of a commutator motor meter have brushes at 90 deg. apart, to furnish a four-pole armature in the fields of two rectangular main current coils, whereof the sides are disposed symmetrically about the armature. A German-silver resistance between the supply mains connects the silver brushes in series. The segments of the silver commutator are secured with hot shellac and threads to a hard fibre tube, which is put together with two ebonite discs that carry the armature windings upon a copper tube fastened upon a steel spindle. A copper disc that moves in the field of a permanent magnet retards the turning of the spindle, which has a sapphire bearing, and is joined by two worm gears to a counter, of which the parallel number-discs are joined with spur-gearing. Brass holders carry the field coils, which, as well as other parts of the meter, are sustained in a frame of aluminium alloyed with 10 per cent. of copper, and fitted with a cover of zinc.

12,797.—DRYING KILNS: *T. Larkin.*—In the case of kilns for drying malt, hops, barley, &c., the inventor separates the drying-chamber from the heating-chamber, and supplies heated air to the former through pipes that traverse the latter and have openings into the space beneath the perforated floor of the drying-chamber.

12,835.—LIFTING APPARATUS FOR USE WITH CRANES: *Stothert & Pitt and P. K. Stothert.*—A friction clutch connects the winding-barrel to the shaft, which is worked with electrical power, and a magnet, which is regulated by the lever that controls the motor serves for the working of the clutch, which should be after the coil kind. The circuit is closed by the first motion of the motor lever; when the magnet is de-energised, a spring opens the clutch again.

12,869.—SAFETY APPLIANCES FOR LIFTS, HOISTS, MINE-CAGES, &C.: *F. F. Lee and H. Groves.*—Two projections are formed upon segmental bodies arranged in the sides of the well or shaft. In each instance one projection is set higher up than is the other, so that as the bottom of the cage wipes over the tapered surface up to the higher projection, the contrivance will be turned to cause the lower projection to extend underneath the cage and hold it up in the event of an accident. The inventors describe the contrivance as being especially available for automatically-detaching apparatus used in mines.

12,877.—A HAND MORTISING MACHINE: *F. Bradbury and F. Bradbury, T. Bradbury and G. E. Bradbury.*—For adjusting the tool-slide to meet differences in the thickness of the wood it is worked with a rack upon the slide and a pinion which is joined to the hand lever; the axis of the pinion carries a plate from which are projections that engage with notches cut in a vertical slot in the machine frame which, together with the projections, serve for the setting of the slide at the height desired.

12,896.—ELECTRICAL COUPLINGS: *W. G. Stones.*—The clamp that holds the conductor is held by the cover of the rose in such a manner as to enable one to adjust the length of the conductor of a hanging lamp and to afford relief for the electrical connexions from the pull upon the conductor; the parts of the clamp, being of some non-conducting materials, are rivetted or bolted to one another, and the bolt-end will serve to prevent disconnection between them.

13,001.—PREPARATION OF LIME: *C. F. Haines.*—Chalk or some such binding material is mixed with calcium carbonate derived as a by-product in processes for softening water, and with coke or furnace breeze, in parts of about 8, 90, and 2 per cent. respectively. The compound is then ground and dried, and burned in a rotatory kiln, or as though it were a cement, or is fashioned into blocks to be burned in a lime-kiln.

13,008.—CONSTRUCTION OF WALLS: *A. Lugino.*—Temporary supports which constitute recesses or grooves for the finishing-coat of plaster are devised for the erection of walls of concrete or mortar in position. In one adaptation are employed metallic plates, having handles and tapered rhomboid-shaped projections, which are bolted at their corners on to slotted uprights. In another form a flexible screen is built up with parallel iron bars secured to one another by wires, and is laid between the ceiling-joists and the floor.

13,015. — CRAMPS FOR USE BY JOINERS AND OTHERS: *A. Mankarz.*—A cramp for use in fixing flooring-boards and similar purposes has a screw on which is mounted a pressing-head to be adjusted with a nut provided with ratchet teeth for engagement with the pawl of a lever-handle, spiked hooks secure a piece to the joist or other member, and the nut is caused to press against the piece.

13,019.—AN APPLIANCE FOR TRAPS, MANHOLES, &C.: *W. Gregory and W. E. Mortimore.*—The inventors contrive that a box shall be hung in the frame by means of its flange which is suitably sealed, for purposes of ventilation they provide apertures in the sides of the box and fit flap-valves against the openings.

13,022.—A DOUBLE-JOINTED SPRING HINGE: *E. Bommer.*—In order to obviate sagging is devised a hinge having two spiral-spring joints and with a webbed connexion between the barrels, the flaps being secured to the jamb and the door respectively, and also to the pintles, a link whereof the length equals the distance between the pintles, joins together the upper corners of the flaps, whereby sagging is prevented, and only one joint of the hinge will be in play at any one time.

13,028.—AN AUTOMATICAL ARRANGEMENT FOR DOORS AND GATES: *P. Scino and L. Zambon.*—As one treads upon a spring he will open the door or gate that is to be closed with a spring. For double doors a wedge which is joined to the free end of the plate forces a sliding bar aside as his weight depresses that end of the plate; racks upon the bar are set in gear with pinions upon the pivots of the door which will thus be opened; then the spring as it draws back the bar closes them, the wedges force the bar in opposed directions, a treading-plate being set on each side of the doors.

13,035.—FLOOR, STAIR, AND SIMILAR TREADS: *F. S. Gabriel.*—For a renewal of any part of the tread is employed a slotted clamping-plate and trough-shaped and T-bars, which retain wedge-shaped leaden bars in position. In another form rods that are clamped between plates screwed on to the floor or stair hold leaden lengths, the first row of the latter being held with a nosing or strip.

13,076.—PROCESS OF MOULDING TILES: *F. Meir.*—A plunger, worked with cams, gives double pressure to the plastic clay or dust, whilst a plunger beneath ejects the tile, being worked with an eccentric that is pivoted on to a slotted and sliding link, a slotted lever which is pivoted to the rod of the plunger being moved by the link, springs press the upper plunger against the cam. An eccentric and a bell-crank lever reciprocate the feeding-box.

13,107.—A DEVICE FOR WINDMILLS FOR PUMPING PURPOSES: *F. M. Phillipps.*—An automatical contrivance for starting and stopping the sails comprises a tank into which the water is pumped by the windmill, and which is joined with a flexible pipe to a receiver mounted upon one end of a pivoted beam; a bar joins the other end of the beam to a rocking beam that is linked to the sail mechanism by means of a cord. Under normal conditions the sails are at work, but as water flows from the tank into the receiver the beams will be tilted and the sails will be turned into the non-working position.

13,152.—MEANS OF HEATING AND VENTILATING BUILDINGS: *I. S. MacDougall and F. Langfield.*—The invention, covering several modifications, consists in the use of air which is heated in a chamber by coils of hot-water pipes, the water flowing downwards, and of fibrous material wetted with a steam-jet carried by water-troughs which moisten the air. In one form the chamber contains three helix-coils joined to pipes that lead to the upper and lower water-spaces of a boiler; another pipe acts as a safety-pipe or for relief of pressure, as well as for the escape of steam or air. The bands of fibre which moisten the hot air as it flows upwards through the heater are laid around tanks in the heating-chamber, and are disposed underneath bars in the water.

13,154.—LIME AND CEMENT SHAFT-KILNS: *W. L. H. Roberts.*—A shaft-kiln has an upper calcining-chamber, the lower cooling-chamber is shaped so as to be wider downwards and then contracted; draw-holes with hanging-bar gratings are set around a cone at the bottom of the kiln which has a hood made of bars covered with metal lathing coated with mortar. At the base of the hood and in the body of the kiln are the charging-holes, and the wall has an air-space. In order that the calcining-chamber may be readily relined, fireclay blocks are laid in courses whereby one can renew the lining upon one side of a course at a time. The fuel is fed in a layer into an annular trough of slip without taking up the middle of the kiln or touching its walls.

13,173.—BATHS (DOMESTIC) AND THEIR FITTINGS: *J. Shanks.*—In one corner of the bath outside the canopy which carries the spray-tubes is arranged a recessed chamber for the outlet, which is encompassed with a flange that acts as a socket for the flange of the trap. In another form a spigot that enters a socket upon the trap is provided. On to the socket is bolted a flanged ring which compresses the packing. Confer also No. 25,704 of 1899 for the bath, of which the tops of the sides are sloped.

13,226.—STAGING AND SCAFFOLDING: *S. Mingazzi.*—The sections of the uprights are joined endwise together by means of flat iron bars clamped in grooves in the sections with screws inserted through straps. Perforated bars pivoted on to adjustable screwed and telescopical struts fasten the uprights to the wall out of the way, or they may be so fastened with chains. Brackets that slide in guides in the uprights, and are hoisted with tackle, carry a movable platform or stage, and have projecting teeth to obviate displacement of the put-logs.

13,237.—MANUFACTURE OF CEMENT PIPES: *O. Neuhaus.*—For making pipes with embedded iron mesh-work a layer of the cement is poured into the mould, a groove is stamped in the layer for taking the meshing, and then a forked stamper that will project over the mesh-work is used for stamping in the further supply of cement on the sides of the iron mesh-work.

13,271.—SCHOOL-ROOM PARTITIONS: *H. Addison.*—On the floor level is a rounded rail that carries centrical lever rollers for the running sections or leaves of the partitions that are also supported with upper rollers that run upon rails of mouldings secured to a girder, roller-brackets joined to the sections with screwed pivots enable one to fold the

sections against the wall, and when they are swivelled the rollers will pass by slots in the mouldings which are pressed against by guide-rollers fastened on to the sections.

13,284.—SPIGOT-AND-SOCKET JOINTS AND PIPE COUPLINGS: *S. G. Railton.*—Of a pair of tubular interlocking pieces the spigot-piece is fashioned with projections that engage with a groove around the socket-piece, the joint is packed with a ring of rubber or a cup-leather in the groove in the socket, a bend in the ring serving for the passage of the filling. For completing the joint one turns the pieces round and pulls them lengthwise when the spigot has been inserted until engagement is effected between stops and the projections from the spigot-piece.

MEETINGS.

FRIDAY, OCTOBER 24.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. W. Harris on "Water: Composition, Pollution, and Purification." 7 p.m.

Institution of Junior Engineers.—Annual general meeting at the Westminster Palace Hotel. Council's report and accounts, election of officers, &c. 8 p.m.

SATURDAY, OCTOBER 25.

The Craft School, Globe-road, E. — Mr. H. H. Cunynghame, C.B., on "The Art of Enamelling," with practical experiments. 8.30 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Southwark and Vauxhall Waterworks, Hampton.—2.30 p.m.

MONDAY, OCTOBER 27.

London Institution.—Right Hon. Lord Avebury, F.R.S., on "The Scenery of England and the Causes to which it is Due." Illustrated. 5 p.m.

TUESDAY, OCTOBER 28.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. R. Kenwood on "Elementary Statistics." 7 p.m.

WEDNESDAY, OCTOBER 29.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—1. Inspection at L. C. C. Common Lodging House, Parker-street, Drury-lane, W.C. 3 p.m. 2. Mr. J. Wright Clarke on "Details of Plumbers' Work." 7 p.m.

THURSDAY, OCTOBER 30.

Institute of Builders.—Dinner, "Walnut Rooms," Grand Hotel, Charing Cross. 6.30 p.m.

Institution of Junior Engineers.—Visit to the headquarters of the Electrical Engineers (R.E.) Corps of Volunteers: Demonstration with searchlight apparatus, &c. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Demonstration of Book-keeping as carried out in a Sanitary Inspector's Office: (Parkes Museum), by Mr. A. Taylor. 7 p.m.

FRIDAY, OCTOBER 31.

Architectural Association.—Conversazione, Royal Institute of Painters in Water-Colours, Piccadilly, W. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor R. Elsey Smith on "Building Materials." 7 p.m.

Institution of Mechanical Engineers.—An extra meeting, when the discussion upon the following paper will be continued: "Oil Motor Cars of 1902." by Captain C. C. Longridge. 8 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 1.—By STEPHENSON & ALEXANDER (at Cardiff).

Ynysybwl, Glamorgan.—The Ynysybwl Inn and 1 a. 3 r. 17 p., f.	£2,900
Freehold shop and 0 a. 1 r. 12 p.	300
The Old Mill, with house and 0 a. 1 r. 7 p., f.	220
Brynffynnon-ter., &c., f.g.r.'s 47*l.* 19s. 5d., reversions in 938, 91c, and from 95 to 71 yrs. (in lots)	1,262

October 9.—By CHESSHIRE, GIBSON, & CO. (at Birmingham).

Temple Balsall, Warwick.—Balsall Farm, 25 a. 2 r. 20 p., f.	1,475
Two cottages and 3 a. 1 r. 25 p., f.	360
Five freehold enclosures, 16 a. 0 r. 29 p.	995
Two freehold fields, 5 a. 0 r. 22 p.	725
Freehold cottage and 6 a. 1 r. 23 p.	570
Henley-in-Arden, Warwick.—74, High-st. (S), f., y.r. 20*l.*	360

By STEPHENSON & ALEXANDER (at Pontypridd).

Llantwit Vardre, Glamorgan.—Cross Inn and blacksmith's shop adjoining, u.t. 31 yrs., g.r. 1*l.* 12s. 6d., y.r. 60*l.*	2,325
The Fox and Hounds Inn, u.t. 35½ yrs., g.r. 1*l.* 10s., y.r. 10*l.*	500
Pontypridd, Glamorgan. — Trallwn, The Ivor Arms p.-h., u.t. 28 yrs., g.r. 4*l.* 4s., y.r. 120*l.*	4,000
High-street, The Bunch of Grapes Hotel, u.t. 18 yrs., g.r. 5*l.* 10s., y.r. 120*l.*	3,250
Tramroad, The Volunteers Inn, u.t. 34 yrs., g.r. 2*l.* 17s., y.r. 100*l.* 10s.	2,400
Trallwn, The Llanover Arms p.-h. and shop adjoining, u.t. 5 yrs., y.r. 100*l.*	500
Penygraig, Glamorgan.—The White Rock Hotel, u.t. 84 yrs., g.r. 13*l.*, y.r. 120*l.*	6,150
Trealaw, Glam.—The Trealaw Hotel, u.t. 62½ yrs., g.r. 3*l.* 14s. 10d., y.r. 200*l.*	8,700

October 10.—By MORRIS, MARSHALL, & POOLE (at Bishop's Castle).

Churchstoke, &c., Montgomery.—The Pentre Farm, 233 a. 1 r. 30 p., f.	4,650
Enclosure of arable, 7 a. 3 r. 21 p., f.	150
Hill pasture land, 29 a. 0 r. 38 p., f.	£360
Church Stretton, Salop.—Queenshatch Corn Mill and 9 a. 3 r. 25 p., f.	1,100
Mainstone, Salop.—Hatfield Cottages (two), with workshops and land, area 2 a. 3 r. 20 p., f.	500
Worthen, Salop.—New Mills House and 13 a. 3 r. 23 p., f.	650
Bishop's Castle, Salop.—High-street, house and business premises, f.	510

By WATERER & DICKINS.

Bickley.—Claremont-rd., a plot of building land, f.	140

October 11.—By STEPHENSON & ALEXANDER (at Cardiff).

Llantwit Vardre, Glam.—Maesteg Farm, 30 a. 1 r. 17 p., f. (including minerals)	2,500
Llantrisant, Glam.—Talbot-rd., two building sites, 5 a. 0 r. 10 p., f.	405

October 13.—By L. CAVEY & CO.

Notting Hill.—25, Silchester-rd. (S), u.t. 60 yrs., g.r. 7*l.* 7s., y.r. 45*l.*	350
Paddington.—2, Brindley-st. (S), u.t. 40 yrs., g.r. 6*l.* 6s., w.r. 34*l.* 4s. 8d.	170
Kentish Town.—162, Prince of Wales-rd. (S), u.t. 45 yrs., g.r. 5*l.*, y.r. 45*l.*	365

By WHATLEY & CO.

St. Pancras.—27, Werrington-st., u.t. 47 yrs., g.r. 10*l.*, w.r. 76*l.* 14s.	385

October 14.—By COCKETT & HENDERSON.

Broadstairs, Kent.—North Foreland, North Foreland Lodge and 5 a. 3 r. 30 p., f., p.	5,650

By DEBENHAM, TEWSON, & CO.

Westminster.—43, Old Queen-st. (S), f., y.r. 70*l.*	1,900
South Woodford.—Woodford-rd., Trefula and 2 a. 0 r. 12 p., f., p.	4,500

By KNIGHT, FRANK, & RUTLEY.

City of London.—26, Silver-st. (business premises), f., y.r. 60*l.*	1,910
Gray's Inn-rd.—No. 52 (business premises), f., p.	4,250

By MULLETT, BOOKER, & CO.

Paddington.—13, Westbourne-ter., North, u.t. 56 yrs., g.r. 10*l.*, y.r. 50*l.*	400

October 15.—By BAXTER, PAYNE, & LEPPER.

Hextable, Kent.—Main-rd., three plots of land, 3 a. 0 r. 7 p., f.	300
New-rd., two plots of land, 1 a. 3 r. 32 p., f.	140

By HAROLD GRIFFIN.

Gray's Inn-rd.—9 and 10, Wylls-st., u.t. 16 yrs., g.r. nil, y.r. 105*l.*	730
Wimbledon.—306, Haydons-rd. (S), u.t. 86 yrs., g.r. 10*l.*, y.r. 50*l.*	480

By DOUGLAS YOUNG & CO.

Clapton.—196, Brooke-rd., f., y.r. 46*l.*	780
Tottenham.—32, The Avenue, u.t. 76½ yrs., g.r. 5*l.* 5s., q.r. 26*l.*	225
Walthamstow.—34 to 54 (even), Cassiobury-rd., u.t., 96¾ yrs., g.r. 44*l.*, w.r. 283*l.* 8s.	1,760

October 16.—By CHESTERTON & SONS.

Crouch End.—5, The Pavement (S), f., y.r. 50*l.*	840
Balham.—2, Grand Parade (S), f., y.r. 80*l.*	1,560
Putney.—4, Railway-ter. (S), f., y.r. 100*l.*	2,220
136, High-st. (S), f., y.r. 120*l.*	3,010
Hackney.—Mare-st., The Flying Horse p.-h., freehold rental of 120*l.*, reversion in 25 yrs.	3,300
145 and 147, Mare-st., a freehold building site	640
Kensington.—3, Berkeley-gdns., f., y.r. 100*l.*	2,010
36, Holland Villas-rd., f., y.r. 140*l.*	2,500
Bethnal Green.—34, Bethnal Green-rd. (S), f., y.r. 230*l.*	4,000
47, Bethnal Green-rd. (S), f., y.r. 140*l.*	2,500
Bayswater.—121, Westbourne-gr (S), f., y.r. 375*l.*	7,510
City of London.—7, Charterhouse-st. (business premises), u.t. 52 yrs., g.r. 80*l.*, y.r. 280*l.*	2,600

By W. N. GALE & CO.

Crouch End.—Palace-rd., range of stabling, yards, &c., u.t. 61 yrs., g.r. 15*l.*, e.r. 95*l.*	460

By VINCENT S. LEIGH.

Hackney.—20 to 28 (even), Treadway-st., and 58 to 76 (even), Temple-st., w.r. 438*l.*; also i.g.r. 3*l.*, u.t. 3 yrs., g.r. 56*l.*	360
Tottenham.—378, West Green-rd., u.t. 20 yrs., g.r. 4*l.*, w.r. 36*l.* 8s.	110

By T. G. WHARTON & STUNT.

Fulham.—9, The Broadway (S), u.t. 60¼ yrs., g.r. 25*l.*, y.r. 275*l.*	4,500
Stratford.—High-st., i.g.r. 56*l.*, u.t. 73 yrs., g.r. 35*l.*	320

By DEASON & PENNY.

Kensal Rise.—66, Greyhound-rd., u.t. 79 yrs., g.r. 5*l.* 5s., w.r. 33*l.* 16s.	205
Harlesden.—5 to 15 (odd), Mordaunt-rd., u.t. 91 yrs, g.r. 30*l.*, w.r. 218*l.* 8s.	1,260
70 to 80 (even), Carlyle-av., u.t. 97 yrs., g.r. 30*l.*, w.r. 218*l.* 8s.	1,260
56, 58, 60, and 78, Buckingham-rd., u.t. 80 yrs., g.r. 20*l.*, w.r. 174*l.* 4s.	1,005
17, Bolton-rd., f., y.r. 36*l.*	400
138, Manor Park-rd., u.t. 84 yrs., g.r. 6*l.* 10s., y.r. 34*l.*	315
13, 15, 17, 19, 29, and 31, Greenhill-pk., u.t. 75 yrs., g.r. 43*l.* 10s., y.r. 246*l.*	2,265
Willesden.—38 and 40, Bourke-rd., u.t. 81 yrs., g.r. 10*l.*, w.r. 58*l.* 10s.	325
110 and 112, Minet-av., u.t. 88 yrs., g.r. 12*l.*, y.r. 88*l.*	670
37, Harley-rd., u.t. 86 yrs., g.r. 5*l.*, y.r. 42*l.*	345
22 and 24, Queen's-rd., u.t. 84 yrs., g.r. 8*l.* 8s., w.r. 62*l.* 8s.	315
Harlesden.—14, Bramshill-rd., u.t. 83 yrs., g.r. 7*l.*, y.r. 40*l.*	380

By NEWBON, EDWARDS, & SHEPHARD.

Islington.—St. Paul's-road, &c., i.g.r. 110*l.*, u.t. 23½ yrs., g.r. 11*l.* 18s. 6d.	1,320
15, Compton-ter., u.t. 15 yrs., g.r. nil, y.r. 60*l.*	405
Highbury.—24, Aberdeen-rd., u.t. 55 yrs., g.r. 9*l.*, y.r. 50*l.*	515
Kentish Town.—7, Dartmouth Park-av., u.t. 76½ yrs., g.r. 9*l.* 12s., y.r. 65*l.*	860
21, Dartmouth Park-av., u.t. 54½ yrs., g.r. 10*l.*, y.r. 55*l.*	600
Marylebone.—95, Great Portland-st. (S), u.t. 20 yrs., g.r. 50*l.*, y.r. 130*l.*	920
53, Bolsover-st., u.t. 29 yrs., g.r. 10*l.*, y.r. 100*l.*	1,100
16, 17, and 18, Bolsover-st., u.t. 2 and 3 yrs., g.r. 58*l.*, w.r. 479*l.* 18s. 4d.	425
62 and 63, Bolsover-st., u.t. 2 yrs., g.r. 30*l.*, w.r. 217*l.* 3s.	260
City-road.—17, Duncan-ter., f., y.r. 60*l.*	1,010
King's Cross.—28 and 29, Carlsbad-st., u.t. 39 yrs., g.r. 8*l.*, w.r. 62*l.* 8s.	450
50 to 56, London-st., u.t. 31 yrs., g.r. 8*l.*, w.r. 98*l.* 16s.	625
Soho.—28, Portland-st. (S), f., y.r. 90*l.*	£2,050
Marylebone.—Upper Gloucester-pl., i.g.r. 37*l.* 16s., u.t. 18 yrs., g.r. nil	460
Tottenham.—1, 2, 3, 6, 7, 8, 10 to 15, Eagle-av., u.t. 82 yrs., g.r. 78*l.* 14s., y.r. 330*l.*	2,830

Contractions used in these lists.—*F.g.r.* for freehold ground-rent; *l.g.r.* for leasehold ground-rent; *i.g.r.* for improved ground-rent; *g.r.* for ground-rent; *r.* for rent; *f.* for freehold; *c.* for copyhold; *l.* for leasehold; *e.r.* for estimated rental; *w.r.* for weekly rental; *y.r.* for yearly rental; *u.t.* for unexpired term; *p.a.* for per annum; *yrs.* for years; *st.* for street; *rd.* for road; *sq.* for square; *pl.* for place; *ter.* for terrace; *cres.* for crescent; *av.* for avenue; *gdns.* for gardens; *yd.* for yard; *gr.* for grove.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 13 0	per 1,000	a ongside, in river
Rough Stocks and Grizzles	1 10 0	,,	,, ,,
Facing Stocks	2 12 0	,,	,, ,,
Shippers	2 5 0	,,	,, ,,
Flettons	1 8 0	,,	at railway depôt
Red Wire Cuts	1 12 0	,,	,, ,,
Best Fareham Red	3 12 0	,,	,, ,,
Best Red Pressed Ruabon Facing.	5 5 0	,,	,, ,,
Best Blue Pressed Staffordshire	4 5 0	,,	,, ,,
Do., Bullnose	4 11 0	,,	,, ,,
Best Stourbridge Fire Bricks	4 8 0	,,	,, ,,

GLAZED BRICKS.

Best White and Ivory Glazed Stretchers	13 0 0	,,	,, ,,
Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats	17 0 0	,,	,, ,,
Double Stretchers	19 0 0	,,	,, ,,
Double Headers	16 0 0	,,	,, ,,
One Side and two Ends	19 0 0	,,	,, ,,
Two Sides and one End	20 0 0	,,	,, ,,
Splays, Chamfered, Squints	20 0 0	,,	,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats	14 0 0	,,	,, ,,
Double Stretchers	15 0 0	,,	,, ,,
Double Headers	14 0 0	,,	,, ,,
One Side and two Ends	15 0 0	,,	,, ,,
Two Sides and one End	15 0 0	,,	,, ,,
Splays, Chamfered, Squints	14 0 0	,,	,, ,,
Seconds Quality White and Dipped Salt Glazed	2 0 0	,,	less than best.
Thames and Pit Sand	7 0	per yard, delivered.	
Thames Ballast	6 0	,,	,,
Best Portland Cement	31 0	per ton, delivered.	
Best Ground Blue Lias Lime	22 0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	10s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 27s. 0d. per ton at rly. dpt.	

STONE.

	s. d.		
Ancaster in blocks	1 11	per ft. cube, deld. rly. depot	
Bath ,,	1 7	,,	,,
Farleigh Down Bath	1 8	,,	,,
Beer in blocks	1 6	,,	,,
Grinshill ,,	1 10	,,	,,
Brown Portland in blocks	2 2	,,	,,
Darley Dale in blocks	2 4	,,	,,
Red Corsehill ,,	2 5	,,	,,
Closeburn Red Freestone	2 1½	,,	,,
Red Mansfield ,,	2 4	,,	,,

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2 10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super.	,,
6 in. Rubbed two sides	2 6	,,	,,
Ditto, Ditto			
3 in. Sawn two sides slabs (random sizes)	0 11½	,,	,,
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7¼	,,	,,
1½ in. to 2 in. ditto, ditto	0 6	,,	,,

BEST HARD YORK—

Scappled random blocks	3 0	per ft. cube	,,
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8	per ft. super.	,,
6 in. Rubbed two sides		,,	,,
Ditt			
3 in. sawn two sides slabs (random sizes)	1 2	,,	,,
2 in. self-faced random flags	0 5	,,	,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt.	
,, ,, ,, 6 in. sawn both sides landings	2	7 per ft. super. deld. rly. depôt.	
,, ,, ,, 3 in. do.	1	2½ ,, ,,	

[*See also page 381.*

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Designs for University Buildings, Cape of Good Hope	Agnt.-Gen. for Cape of Good Hope	400*l.*, 200*l.*, 100*l.*	Jan. 31
*Church in Wavertree	.....	50*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Alterat'ns, St. Michael's Ch., Arlecdon, nr. Cockerm'th	.....	J. H. Martindale, Architect, Viaduct Chambers, Carlisle	Oct. 28
Paving Brinkburn and other Streets, East Howden	Tynemouth Corporation	J. F. Smillie, Borough Surveyor, Town Hall, North Shields	do.
Sanitary Wrks., Wrkhse., Gravelly Hill, nr. Birmghm.	Aston Guardians	C. Whitwell, Architect, 23, Temple-row, Birmingham	do.
Road Works, Hindes-road	Harrow-on-the-Hill U.D.C.	J. P. Bennetts, Engineer, Council Offices, Harrow	do.
Stabling, &c., Hawkshead, Kendal	Colonel Sandys	J. Banks, Surveyor, Kendal	do.
Eight Houses, Workington	Mr. J. Harding	J. Harding, 23, Fisher-street, Workington	do.
Waterworks	Padstow (Cornwall) U.D.C.	W. H. Pope, Council Offices, Padstow	do.
Additions to Hospital	Crewe Town Council	G. E. Bolshaw, Architect, 189, Lord-street, Southport	do.
Water Main, Wroughton	Swindon Corporation	R. Hilton, Town Hall, Swindon, Wilts	do.
Schoolroom at St. John the Baptist Church	.....	J. Kirk & Sons, Architects, Dewsbury	do.
*2,425 feet Brick Culvert, &c., at Harlesden	Willesden District Council	Engineer to the Council, Public Offices, Dyne-rd., Kilburn, N.W.	do.
*Making up Roads & Paving Open Spaces around Bldngs.	West Ham Union	Clerk's Office, Union Workhouse, Leytonstone, N.E.	Oct. 29
*Preparing, Staining, & Polishing Pitch Pine Flooring.	do.	do.	do.
Road Works, Alexandra-road, Upper Parkstone	Poole (Dorset) U.D.C.	J. Elford, Borough Surveyor, Poole	do.
Street Works	Withington U.D.C.	A. H. Mountain, Civil Engineer, Town Hall, Withington	do.
Sewerage Works, Tinsley	Rotherham R.D.C.	J. Platts, Borough Surveyor, High-street, Rotherham	do.
Paving Works, &c., Eaglescliffe	Stockton R.D.C.	W. Burton, Surveyor, Billingham	do.
Road Works	Litherland (Lancs) Corporation	A. H. Carter, Surveyor, 25, Sefton-road, Litherland	do.
Business Premises, Lowgate, Hull	Messrs. R. Johnson & Sons	B. S. Jacobs, Architect, Bowlalley-lane, Hull	do.
*Road Materials, Finsbury Park	London County Council	Parks Department, 11, Regent-street, S.W.	do.
Five Houses, Beckermet, Cumberland	.....	J. S. Stout, Civil Engineer, 36, Lowther-street, Whitehaven	Oct. 30
Sewers, Newport, near Barnstaple	.....	W. C. Oliver, Architect, Barnstaple	do.
Sewerage Works	Dumfries Town Council	W. A. Carter, Civil Engineer, 5, St. Andrew's-square, Edinburgh.	do.
Underground Convenience, Springburn-road	Glasgow Corporation	J. Lindsay, City Chambers, Glasgow	do.
Granite	Peterborough Town Council	J. W. Walshaw, City Surveyor, Guildhall, Peterborough	do.
Brick Wall at Schools, The Elms	Ramsgate Corporation	T. G. Taylor, Borough Surveyor, Town Hall, Ramsgate	do.
Paving Works	Salford Corporation	Borough Engineer, Town Hall, Salford	do.
Sewerage Works	Sedgefield R.D.C.	D. Balfour & Sons, Civil Engineers, Newcastle-on-Tyne	do.
Alterations to Schools	Stifford (Essex) School Board	C. M. Shiner, Architect, Grays, Essex	do.
Schools, Penclyn, Wales	Llangyfelach Mawr School Board.	W. Davie, Architect, 97, Gorse-lane, Swansea	do.
Two Houses, Ellenborough, Cumberland	.....	C. Eaglesfield, Architect, Maryport	Oct. 31
Paving Works, Salterhebble	.....	Jackson & Fox, Surveyors, Halifax	do.
Rebuilding No. 52, South Mall, Cork	.....	W. H. Hill & Son, Architects, Cork	do.
Alterations to Premises	Hereford Guardians	W. W. Robinson, Architect, 10, King-street, Hereford	do.
Staircases, &c., at Workhouse	Eastbourne Guardians	F. G. Cooke, Architect, 2, Hyde-gardens, Eastbourne	do.
Paving Lomas and Norman streets	Middleton (Lancs) Corporation	F. Entwistle, Town Hall, Middleton	do.
Destructor Buildings, Ballington-street	Sudbury (Suffolk) Corporation	T. W. A. Hayward, Civil Engineer, Town Hall, Sudbury	Nov. 1
Additions to Schools, Bildeston, Suffolk	Nedging & Naughton School Brd.	Robert Pannifer, Bildeston	Nov. 2
Stoneware Drain Pipes, &c.	Guildford Town Council	C. G. Mason, Civil Engineer, Town Hall, Hastings	Nov. 3
Schools, Aberbargoed, Wales	Bedwellty School Board	James & Morgan, Architects, Cardiff	do.
Additions to Schools, Beaufort Hill	Llangattock School Board	H. Waters, Architect, Waengoch, Beaufort	do.
Sewer, Back Hill, Woodford Bridge	Woodford U.D.C.	W. Farrington, Surveyor, Council Offices, Woodford Green	do.
Waterworks, Hempstead, Sussex	Uckfield Water Company	J. Lewis, Engineer, Maresfield, Sussex	do.
Setts, &c. (800 tons)	Belfast Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast	do.
Road Metal, &c.	Elgin Town Council	A. Hogg, Surveyor, 24, Academy-street, Elgin	do.
Borehole, &c.	Ware U.D.C.	Bailey-Denton & Co., Civil Engineers, Palace Chambers, S.W.	do.
Sewers, &c., Lansdowne Estate, Slough	.....	J. Baker, Civil Engineer, 75, High-street, Slough	do.
Cast-iron Water Main	Sutton-in-Ashfield (Notts) U.D.C.	G. & F. Hodson, Architects, Loughborough	Nov. 4
Sewage Disposal Works	Cannock (Staffs) U.D.C.	C. R. Walker, Civil Engineer, 25, Victoria-street, S.W.	do.
*Wrought-iron Fencing, &c.	Watford U.D.C.	Engineer to the Council, 14, High-street, Watford, Herts	Nov. 5
Alterations to Pavilion, Palace-place	Brighton Town Council	F. J. C. May, Civil Engineer, Town Hall, Brighton	do.
Chapel, Cwmllynfell, Glamorgan	.....	Rev. J. Rees, Cwmllynfell, Glam.	do.
*Villas at New Malden	Metropolitan Asylums Board	V. Davidson, 7, Market-place	do.
*Isolation Hospital at Leavesden Asylum, nr. Watford	Chiswick U.D.C.	Office of the Board, Embankment, E.C.	do.
*Street Improvement Works	Trinity House Corporation	Surveyor to the Council, Town Hall, Chiswick	do.
*Fog Signal House, &c., Nash Point, Glamorgan	Glyncorrwg U.D.C.	Trinity House, E.C.	Nov. 6
Street Works, Blaengwnfi, Wales	Magor R.D.C.	W. P. Jones, Surveyor, Cymmer, Port Talbot	Nov. 10
Road Works, Llanmartin, Wales	Middlesex County Council	R. Thomas, Queen's Hill, Newport, Mon.	Nov. 11
*Additions to Polytechnic, Priory Park-rd., Willesden	Epsom R.D.C.	The County Architect, Middlesex Guildhall, Westminster	do.
*Cheam Sewerage	Hampton U.D.C.	H. D. Searles Wood, 157, Wool Exchange, Coleman-street, E.C.	do.
*Fifty-five Cottages at Rosehill Estate	Worcester County Council	Surveyor to the Council, Public Offices, Hampton Wick	do.
*New Lunatic Asylum, Barnsley Hall, nr. Bromsgrove.	Braintree Union	Clerk to the Visiting Committee, Shirehall, Worcester	Nov. 15
*New Master's Quarters, Bocking	Dartford School Board	Clerk to the Guardians, 1, New-street, Braintree	do.
*Additions to West Hill Boys School	Metropolitan Asylums Board	S. G. Thacker, 90, High Holborn, W.C.	Nov. 18
*Female Attendants' Home, Darenth Asylum	Rhymney Iron Co.	Newman & Newman, 31, Tooley-street, London Bridge, S.E.	Nov. 19
Masonry Works, Bargoed	.....	The Secretary, Iron Company's Offices, Rhymney	No date
Two Houses, Denby Dale-road, Wakefield	.....	W. Wrigley, Architect, 6, Westgate, Wakefield	do.
Farm Buildings, &c., Pebmarsh, Bures, Essex	Cockermouth Burial Board	C. P. Whiteley, Architect, 82, Queen-street, E.C.	do.
Works at Chapel	Harwich Conservancy Board	T. C. Burn, Main-street, Cockermouth	do.
Dredging Works at Harbour		T. Miller, Civil Engineer, 9, Thorough-lane, Ipswich	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Clerk of Works	Acton District Council	Not stated	Oct. 28

Those marked with an asterisk (*) are advertised in this Number. *Competition, p.* iv. *Contracts, pp.* iv. vi. viii. x. & xxii. *Public Appointment* xviii.

PRICES CURRENT (*Continued*).

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor	12 5 0	per 1000 of 1200 at ry. dep
20×12 " " "	13 5 0	" "
20×10 best seconds "	11 15 0	" "
20×12 " " "	12 17 6	" "
16×8 best "	6 17 6	" "
20×10 best blue Portmadoc	11 7 6	" "
16×8 best blue Portmadoc	6 5 0	" "
20×10 best Eureka unfading green	15 0 0	" "
20×12 " "	16 10 0	" "
18×10 " "	11 10 0	" "
16×8 " "	7 10 0	" "
20×10 permanent green	10 10 0	" "
18×10 " "	9 0 0	" "
16×8 " "	6 5 0	" "

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1,000, at rly. depôt.
Hip and valley tiles	3 7	per doz. " "
Best Broseley tiles	50 0	per 1,000 " "
Do. Ornamental tiles	52 6	" " "
Hip and valley tiles	4 0	per doz. " "
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 " "
Do. ornamental Do.	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3	" " "
Best Red or Mottled Staffordshire Do. (Peakes)	51 0	per 1,000 " "
Do. Ornamental Do.	54 6	" " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	9 10 0
2 in. by 4½ in. and 2 in by 5 in.	8 10 0	9 10 0
Foreign Sawn Boards— 1 in. and 1½ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0
JOINERS' WOOD.	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0
" " 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	11 10 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg :— First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
" " " 3 in. by 9 in.	12 10 0	13 10 0
" " " battens	9 10 0	10 10 0
Pitch-pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	33 0 0	upwards.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs— Large, per ft. cube	0 2 6	0 3 6
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8
¾ in. do. do.	0 0 6½	- - -
Dry Mahogany— Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 10 0	20 0 0
American Whitewood Planks— Per ft. cube	0 4 0	- - -
Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched	0 12 0	0 14 0
1¼ in. by 7 in. white, planed and matched	0 14 6	0 16 6

PRICES CURRENT (*Continued*).

WOOD.

Prepared Flooring—	Per square. £ s. d.	£ s. d.
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0 11 0	0 13 6
1 in. by 7 in. do. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6-in. at 6d. to 9d. per square less than 7-in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders " "	8 2 6	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	- - -
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 10 0
" " galvanised	16 0 0	. . .
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 0 0	- - -
" " to 24 g.	11 0 0	- - -
" " to 26 g.	12 10 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -
Sheet Iron, Galvanised, flat, best quality:—		
Ordinary sizes to 20 g.	16 0 0	- - -
" " 22 g. and 24 g.	16 10 0	- - -
" " 26 g.	18 0 0	- - -
Galvanised Corrugated Sheets:—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 0 0	- - -
" " 22 g. and 24 g.	13 0 0	- - -
" " 26 g.	14 5 0	- - -
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0
(Under 3 in. usual trade extras.)		

LEAD, &c.

	Per ton in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	13 7 6	- - -
Pipe in coils	13 17 6	- - -
Soil Pipe	16 7 6	- - -
Compo Pipe	16 7 6	- - -
ZINC—Sheet—		
Vieille Montagne ton	25 0 0	- - -
Silesian	24 10 0	- - -
COPPER—		
Strong Sheet per lb	0 0 10	- - -
Thin "	0 0 11	- - -
Copper nails "	0 0 11	- - -
BRASS—		
Strong Sheet "	0 0 9	- - -
Thin "	0 0 10	- - -
TIN—English Ingots "	0 1 3	- - -
SOLDER—Plumbers' "	0 0 6½	- - -
Tinmen's "	0 0 8½	- - -
Blowpipe "	0 0 9½	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2⅜d. per ft. delivered.
" fourths	1⅞d. " "
21 oz. thirds	3⅛d. " "
" fourths	2½d. " "
26 oz. thirds	4d. " "
" fourths	3⅛d. " "
32 oz. thirds	5d. " "
" fourths	4⅛d. " "
Fluted sheet, 15 oz.	3d. " "
" 21 "	4d. " "
⅛ Hartley's Rolled Plate	1⅝d. " "
3/16 " " "	2d. " "
¼ " " "	2½d. " "

OILS, &c.

	£ s. d.
Raw Linseed Oil in pipes or barrels per gallon	0 2 5
" " " in drums "	0 2 8
Boiled " " in pipes or barrels "	0 2 7
" " " in drums "	0 2 10
Turpentine, in barrels "	0 3 2
" in drums "	0 3 4
Genuine Ground English White Lead per ton	21 0 0
Red Lead, Dry "	20 0 0
Best Linseed Oil Putty per cwt.	0 8 6
Stockholm Tar per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 6
Superfine Hard-drying Oak, for Seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0

PRICES CURRENT (*Continued*).

VARNISHES, &c.

	Per gallon. £ s. d.
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TO CORRESPONDENTS.

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABER-BARGOED (Mon.).—For the erection of fifty houses. Mr. Geo. Kenshole, architect, Station-road, Bargoed:—

H. R. Paul	£9,000 0	W. Morris	£8,147 10
Thomas & Co.	8,950 0	Colin Sora	8,000 0
R. Jones	8,875 0	Thomas & Hughes	7,875 0
J. Williams	8,550 0	Williams & Sons, New Tredegar*	7,737 10
J. Davies	8,350 0		
James & Son	8,290 0		

BEXHILL (Sussex).—For the supply and delivery of granite and Kentish rag macadam, for the Urban District Council. Mr. Geo. Ball, C.E., Town Hall, Bexhill:—

	Scotch Granite. per ton. s. d.	Kent Rag. per ton. s. d.
A. & A. R. Lang, Gourack*	13 3	—
W. Hudson, Brighton*	15 8 / 13 11	10 2
W. Benton	14 6	—
Chittenden & Simmons	..	11 9
H. L. Cooper	14 3	—
Hall & Co.	14 0	11 0
A. G. Hughes	14 0	10 9
Paramor & Sons	15 11	—
L. Sommerfeld	13 5	—

BLAENAVON (Mon.).—For alterations to the Bethlehem Chapel, for trustees of Bethlehem Welsh Congregational Church. Mr. F. A. Bennett, architect:—

F. Moore	£595 10 0	James Bevan, Blaenavon*	£306 16 8
J. Morgan	326 10 0		

BRANDON (Suffolk).—For the erection of post office buildings. Mr. Jas. Farley, architect, Old Cross, Hertford:—

J. H & F. Mann	£1,378 10 0	G. Jackson	£1,450 0 0
Nash & Nash	1,576 0 5	J. G. Cowell	1,446 0 0
J. Holmes	1,550 0 0	G. E. Hawes	1,399 0 0
E. West	1,539 0 0	Parren & Son, Earith, St. Ives, Hunts*	1,251 0 0
R. Dye	1,497 0 0	Hipwell & Co.	1,150 0 0
R. Shanks	1,450 0 0		

DEVONPORT.—For the construction of an earthen embankment, road, &c., Camelshead:—

Matchem & Co., Plymouth £31,385

HALIFAX.—For the execution of sewerage works, Burnley-road, for the Corporation. Mr. Jas. Lord, C.E., Town Hall, Halifax. Quantities by Borough Engineer:—

Spencer Bros.	£760 17 3	Bedford & Son	£533 15 2
Greenwood & Son	641 15 6	Bower Bros.*	516 12 2

[All of Halifax.]

LONDON.—For making-up and paving Campbell-street, for the Fulham Borough Council. Mr. Francis Wood, C.E., Town Hall, Fulham, S.W.:—

Nowell & Co. £410

For Footways.

Croft Granite Co. 64

LONDON.—For two granite drinking fountains at Mill Fields, for the London County Council:—

Harding & Son	£190 10	R. W. Gibbs*	£145 0
A. Conway	175 0		

[*See also next page*

MARGATE.—For the supply of pit flints and broken granite, for the Town Council. Mr. E. A. Borg, Borough Surveyor, Town Hall, Margate :—

Penlee Granite (600 *tons*).

	Per ton, delivered.
Jas. Runnalls, Penzance*	12s.

Pit Flints (1,500 *yards*).

	Per yard.
Thos. Tobin, Margate*	6s.

NEWPORT (Monmouthshire).—For the erection of the Newport Borough Lunatic Asylum, at Caerleon, Monmouthshire. Mr. A. J. Wood, architect, 22, Surrey-street, Victoria Embankment, W.C. Quantities by Messrs. Widnell & Trollope, 20, Tothill-street, Westminster, S.W.:—

J. McCormick	£123,288	Turner & Sons	£109,250
Kerridge & Shaw	118,410	Allan & Sons	109,000
Chas. Wall	117,000	King & Son	108,218
Watkin Williams	116,990	Willcock & Co.	107,875
D. W. Davies	115,000	Linton & Co., Newport	105,999
Johnson & Co.	110,850		
Morgan & Co.	110,500		

Revised Tenders.

Linton & Co.	£97,900	King & Son, London	£96,798
Willcock & Co.	96,865		

Electric Plant.

Bertram Thomas, Manchester † £3,433

Wiring and Fittings.

Lowdon Bros. & Co., Dundee † £2,500

PAIGNTON.—For proposed alterations and additions to 3 and 5, Victoria-street, Paignton, for the Wilts and Dorset Banking Co., Ltd. Messrs. Bridgman & Bridgman, architects, Torquay and Paignton. Quantities by Mr. Vincent Cattermole Brown, Paignton :—

Lapthorn & Co.	£2,160	Herbert Drew	£1,630
Mitchell & Sons	1,975	W. Blake	1,600
F. A. Stacey	1,900	Parker & Sons	1,600
J. C. & W. Watson	1,780	Webber & Sons, Paignton*	1,500
Hugh Mills	1,734		
C. & R. E. Drew	1,700		

PAIGNTON.—For alterations and additions to Halcon, Paignton, for Dr. C. Hyde Cosens. Messrs. Bridgman & Bridgman, architects, Torquay and Paignton :—

E. Westlake	£211 10 0	C. & R. Drew, Paignton	£198 4 6

REIGATE.—For the erection of an extension to business premises, 74, Lesbourne-road, Reigate, for Messrs. Spencer & Son. Mr. C. E. Salmon, architect, Bell-street, Reigate :—

T. Bushby & Son	£159	Nightingale & Sons	£136
Bagaley & Sons	155	G. Martin, Redhill*	117

RUSHDEN.—For villa residence and stable, &c., to be built at Rushden, for Mr. Geo. Selwood. Quantities by Mr. Harry Knight, Rushden :—

		Extra for stone bay.
C. E. Bayes	£1,050 0 0	—
T. Willmott	1,023 0 0	—
G. Johnson	1,010 18 0	£16
H. Sparrow	1,003 0 0	12
Hacksley Bros.	975 0 0	13
T. Swindall	935 0 0	—
J. Titmus	891 15 6	14
W. Packwood, Rushden*	875 10 0	12

SHIRLEY (Southampton).—For the construction of roads, sewers, and wood fencing on the Alexandra Park Estate, for the County of Hants Land and Building Society, Ltd. Mr. William Burrough Hill, surveyor, Southampton :—

Roads and Sewers.

H. J. Hood	£2,594 0 0	Douglas & Richards	£2,222 0 0
S. Saunders	2,480 0 0		
Plascott & Son	2,395 0 0	F. Osman	2,166 0 0
J. C. Trueman	2,299 0 0	J. F. Butt, Southampton*	2,110 18 3
J. Nichols	2,252 0 0		

[Surveyor's protecting estimate, £2,175.]

Wood Fencing.

Lunn Bros.	£270 11	Fletcher & Co., Eling, Southampton*	£238 3
Plascott & Son	270 0	G. Sandy	222 0
F. Osman	266 0		

[Surveyor's protecting estimate, £215]

SOUTHAMPTON.—For the supply of granite settss for the Corporation. Mr. J. A. Crowther, Borough, Engineer, Municipal Offices, Southampton :—

Coarse Grained Setts.

	s. d.
A. & F. Manuelle, London*	29 6 per ton.

Fine Grained Setts.

	s. d.
Brundritt & Co., Liverpool*	31 3 per ton.

TORQUAY.—For proposed alterations and additions to Nos. 79 and 81, Union-street, Torquay, for the Torquay Co-operative Society, Ltd. Messrs. Bridgman & Bridgman, architects, Torquay and Paignton. Quantities by Mr. Vincent Cattermole Brown, Paignton :—

Hawkins&Son	£3,505 0 0	J. C. & W. Watson	£2,720 7 3
J. Smerdon	3,390 0 0	E. Pike	2,710 0 0
Yeo & Sons	2,999 11 3	J. Mumford*	2,611 0 0
S. Blatchford	2,864 0 0	R. W. Wyatt	2,519 0 0

[All of Torquay.]

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NURSES | LOBBY | STORE
COALS
WARD 6 BEDS

~12 BED~PAVILION~

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BATH | SINK | LOBBY | V.L. | STORE | SINK | SINK
WARD 8 BEDS
NURSES
HALL
LADDER | COALS

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BATH | W.C. | LOBBIES | SINK
WARD 6 BEDS
NURSES | LOBBY | STORE
WARD 6 BEDS

COVERED WAY

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SINK
W.C
NURSES
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V.L
W.C
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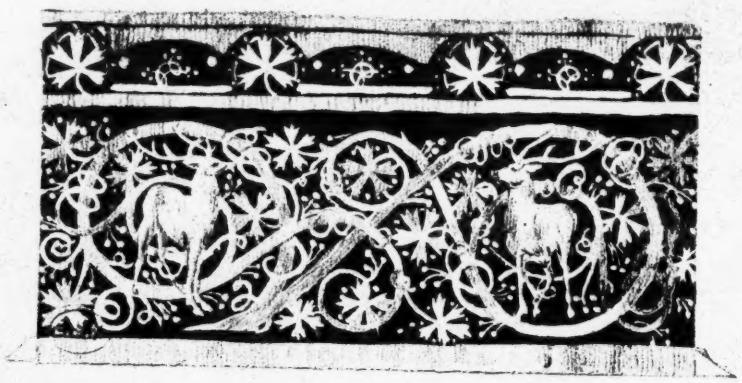

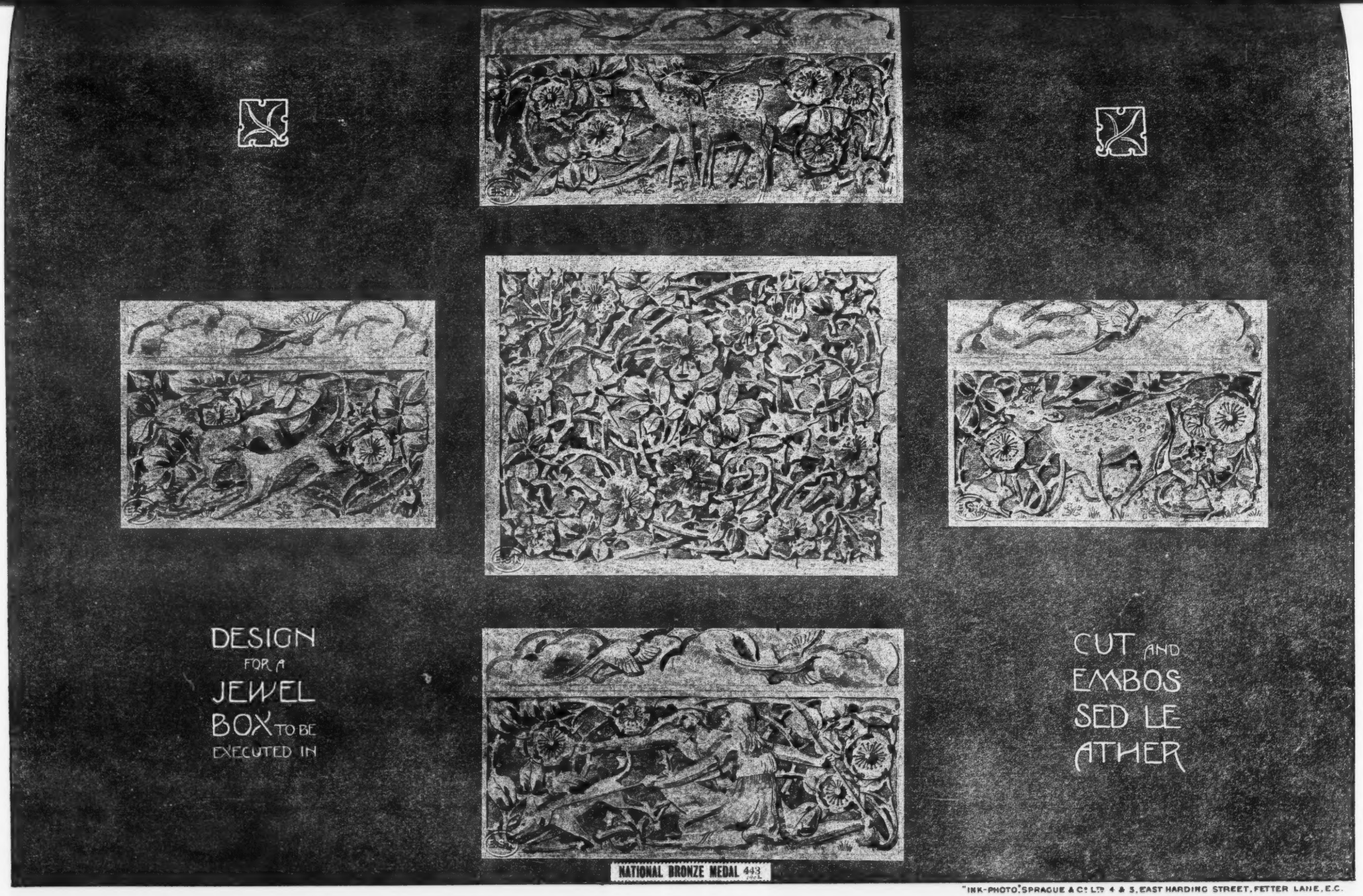

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